351

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ADMIRAL CHASSIS 14UY3B, C

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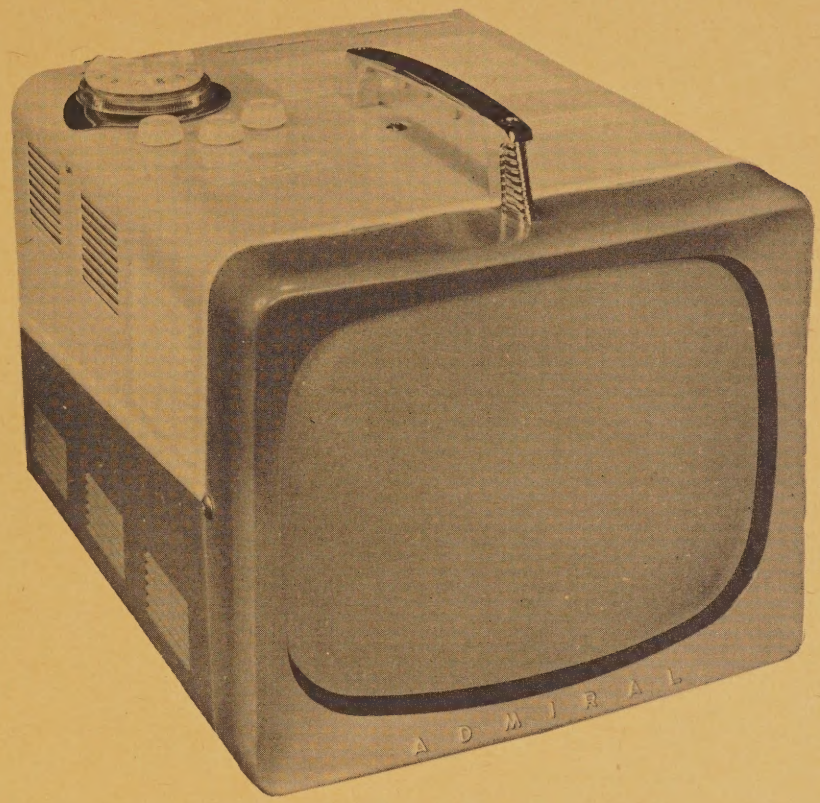

ADMIRAL MODEL TS104 (Ch. 14UY3B)

TRADE NAME	Admiral	MODELS	CHASSIS
		TS101, TS102, TS103, TS104, TS105AL, TS106AL, TS107AL, TS1010, TS1011AL, TS1012AL, TS1013AL	14UY3B
		TS140, TS141, TS142, TS143, TS144AL, TS145AL	14UY3C
MANUFACTURER	Admiral Corp., 3800 W. Cortland St., Chicago 47, Illinois		
TYPE SET	Television Receiver		
TUBES	Fifteen		
POWER SUPPLY	110-120 Volts AC - 60 Cycles	RATING 120 Watts, 1.1 Amp. @ 117 Volts AC	
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)		

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ADMIRAL CHASSIS 14UY3B, C

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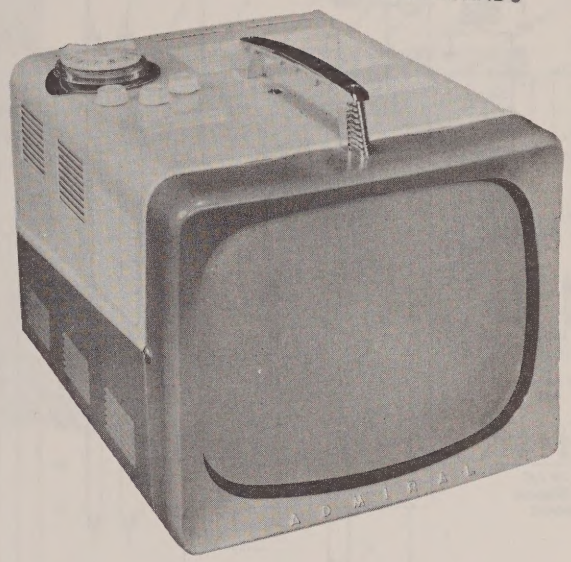
DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove 5 push-on type control knobs.
2. Remove 2 metal screws, remove rear cover.
3. Remove 2 metal screws, remove handle.
4. Remove 4 metal screws, remove front and safety glass.
5. Remove 1 chassis bolt from top of cabinet.
6. Remove 3 chassis bolts and 4 rubber feet from bottom of cabinet.
7. Remove chassis from front of cabinet.
8. Remove 2 speaker leads.
9. Remove 2 metal screws holding speaker, remove speaker.



CAUTION NOTE

ONE SIDE OF AC LINE CONNECTED TO CHASSIS

Care should be exercised when connecting test equipment or physically contacting chassis.

MODEL	CHASSIS
TS104	14YU3B

ADMIRAL CHASSIS
14UY3B, C

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustments of the VHF tuner oscillator circuit may be accomplished by removing the channel selector and fine tuning knobs.

PICTURE TUBE SAFETY GLASS CLEANING

1. Remove 2 metal screws, remove handle.
2. Remove 4 metal screws holding front of cabinet.
3. Using extreme caution, remove front and safety glass.

SERVICE ADJUSTMENT LOCATION

See tube placement chart on page 5.

FOCUS

Focus may be varied by placement of strap between pins 6 and 2, or 6 and 10, of the picture tube. Readjust Ion trap for best focus consistent with maximum brightness.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

Adjust horizontal hold until picture synchronizes horizontally.

FUSES

A 10Ω fusible resistor (R92) is used for LV power supply protection.

CENTERING

Centering is accomplished mechanically by adjusting two magnetic rings around the neck of the picture tube. Rotate the two rings around the neck of the tube until the picture is properly centered.

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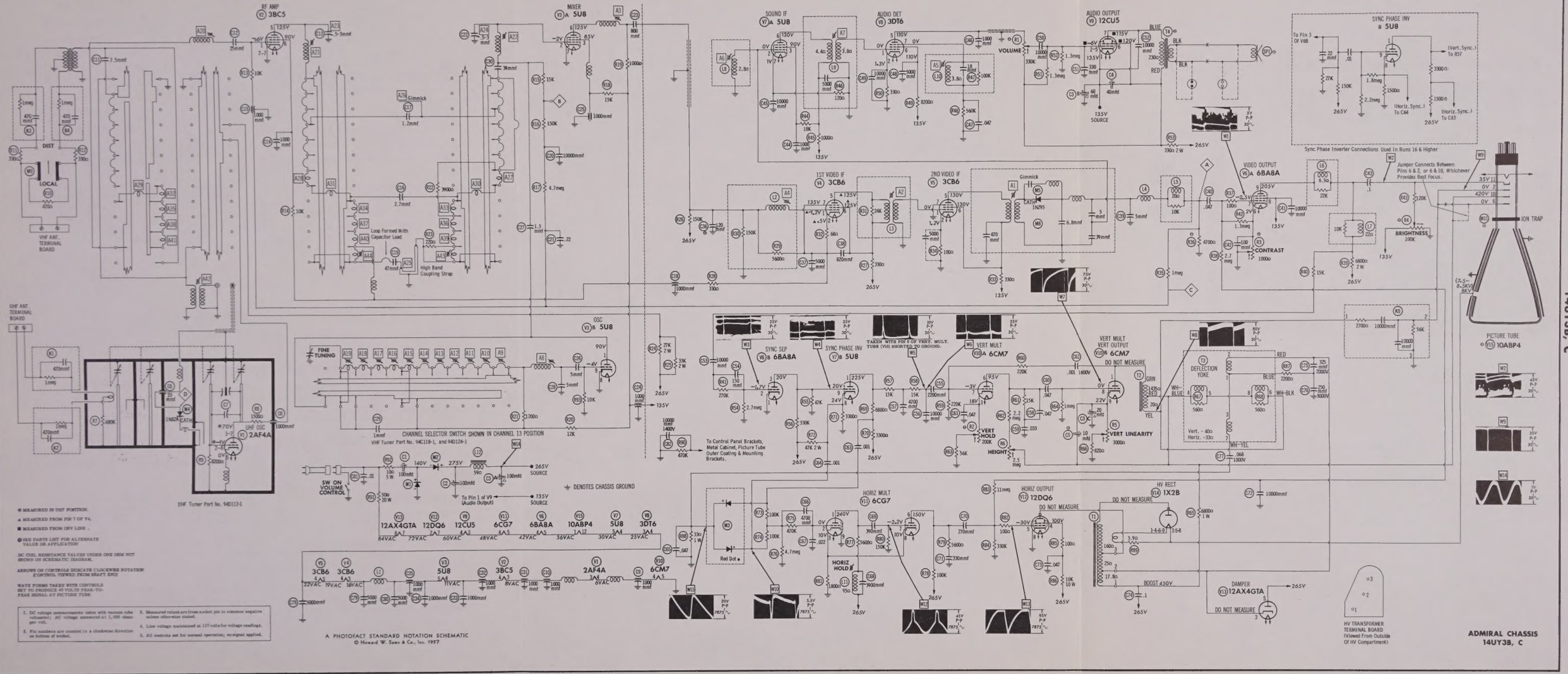
ADMIRAL CHASSIS
14UY3B, C
RF AMP
V2 3BC5
MIXER
V3A 5U8
OSC
V3B 5U8
SOUND IF
V7A 5U8
AUDIO DET
V8 3DT6
AUDIO OUTPUT
V9 12CU5
SYNC PHASE INV
B 5U8
1ST VIDEO IF
V4 3CB6
2ND VIDEO IF
V5 3CB6
VIDEO OUTPUT
V16A 6BA8A
SYNC SEP
V6B 6BA8A
SYNC PHASE INV
V7B 5U8
VERT MULT
V15A 6CM7
VERT MULT
VERT OUTPUT
V10B 6CM7
DO NOT MEASURE
HORIZ MULT
V11 6CG7
HORIZ OUTPUT
V12 12DQ6
DO NOT MEASURE
HV RECT
V14 1X2B
DO NOT MEASURE
DAMPER
V13 12AX4GTA
DO NOT MEASURE
UHF OSC
V1 2AF4A
PICTURE TUBE
V15 10ABP4
ION TRAP
VOLUME
BRIGHTNESS
CONTRAST
VERT HOLD
HEIGHT
VERT LINEARITY
HORIZ HOLD
FINE TUNING
DIST
LOCAL
SW ON VOLUME CONTROL
CHANNEL SELECTOR SWITCH SHOWN IN CHANNEL 13 POSITION
VHF Tuner Part No. 94C118-1, and 94D124-1
UHF Tuner Part No. 94D112-1
VHF ANT. TERMINAL BOARD
UHF ANT. TERMINAL BOARD
Loop Formed With Capacitor Lead
High Band Coupling Strap
Gimmick
DENOTES CHASSIS GROUND
To Control Panel Brackets, Metal Cabinet, Picture Tube Outer Coating & Mounting Brackets.
To Pin 1 of V9 (Audio Output)
135V SOURCE
265V SOURCE
Sync Phase Inverter Connections Used In Runs 16 & Higher
Jumper Connects Between Pins 6 & 2, or 6 & 10, Whichever Provides Best Focus.
HV TRANSFORMER TERMINAL BOARD (Viewed From Outside Of HV Compartment)
ADMIRAL CHASSIS
14UY3B, C
12AX4GTA 12DQ6 12CU5 6CG7 6BA8A 10ABP4 5U8 3DT6
84VAC 72VAC 60VAC 48VAC 42VAC 36VAC 30VAC 25VAC
3CB6 3CB6 5U8 3BC5 2AF4A 6CM7
22VAC 19VAC 16VAC 8VAC 6VAC
★ MEASURED IN UHF POSITION.
▲ MEASURED FROM PIN 7 OF V4.
■ MEASURED FROM 135V LINE.
● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.
ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)
WAVE FORMS TAKEN WITH CONTROLS SET TO PRODUCE 45 VOLTS PEAK-TO-PEAK SIGNAL AT PICTURE TUBE
1. DC voltage measurements taken with vacuum tube voltmeter; AC voltage measured at 1,000 ohms per volt.
2. Pin numbers are counted in a clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line voltage maintained at 117 volts for voltage readings.
5. All controls set for normal operation; no signal applied.
A PHOTOFACT STANDARD NOTATION SCHEMATIC
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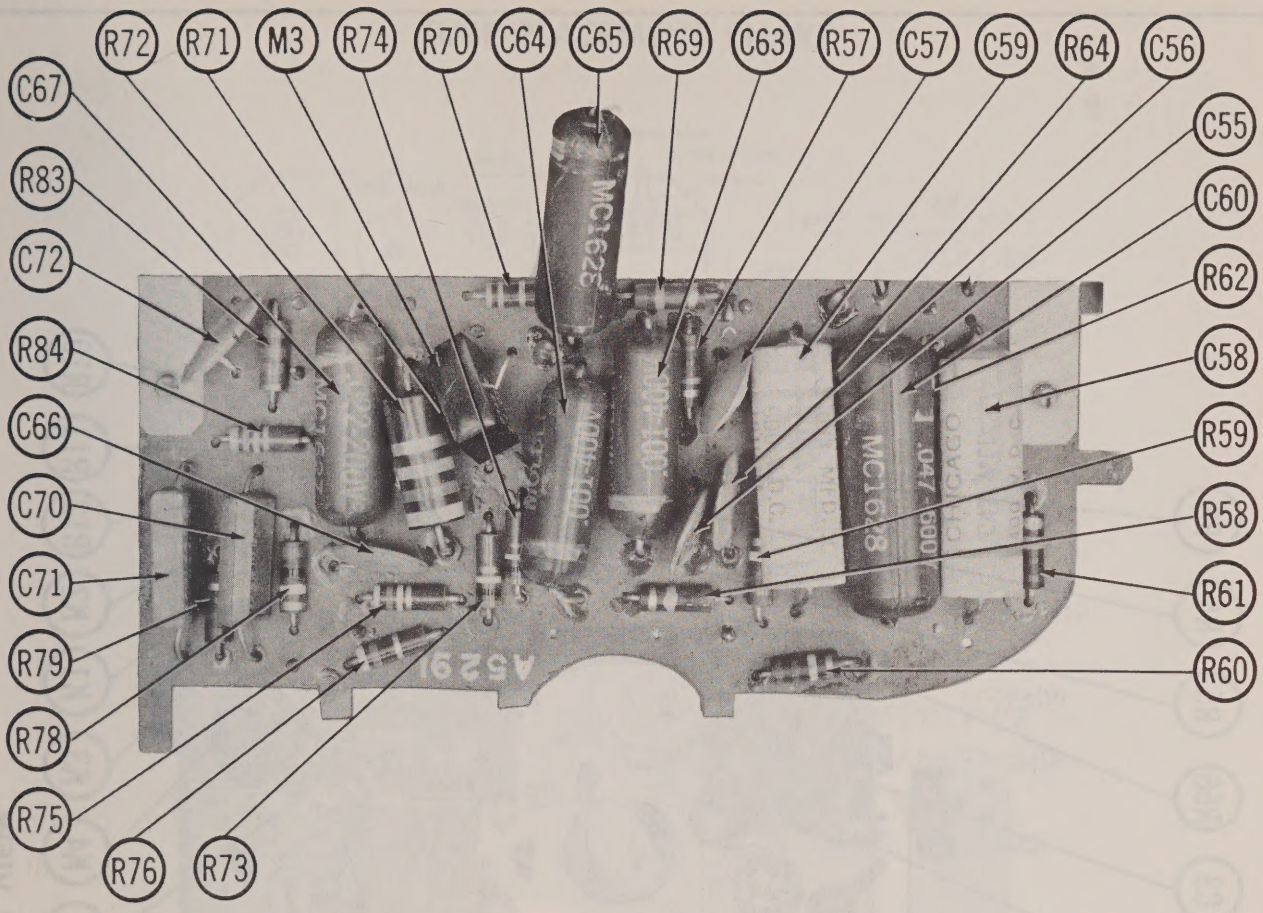

SYNC & SWEEP PRINTED BOARD

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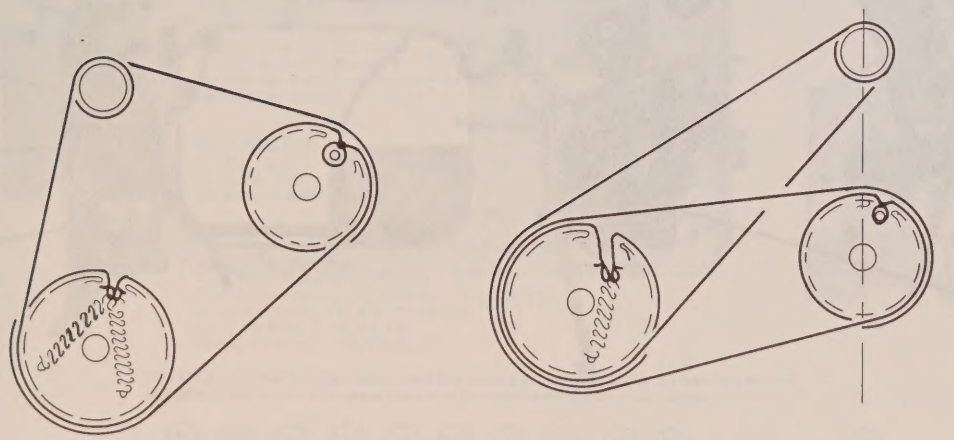
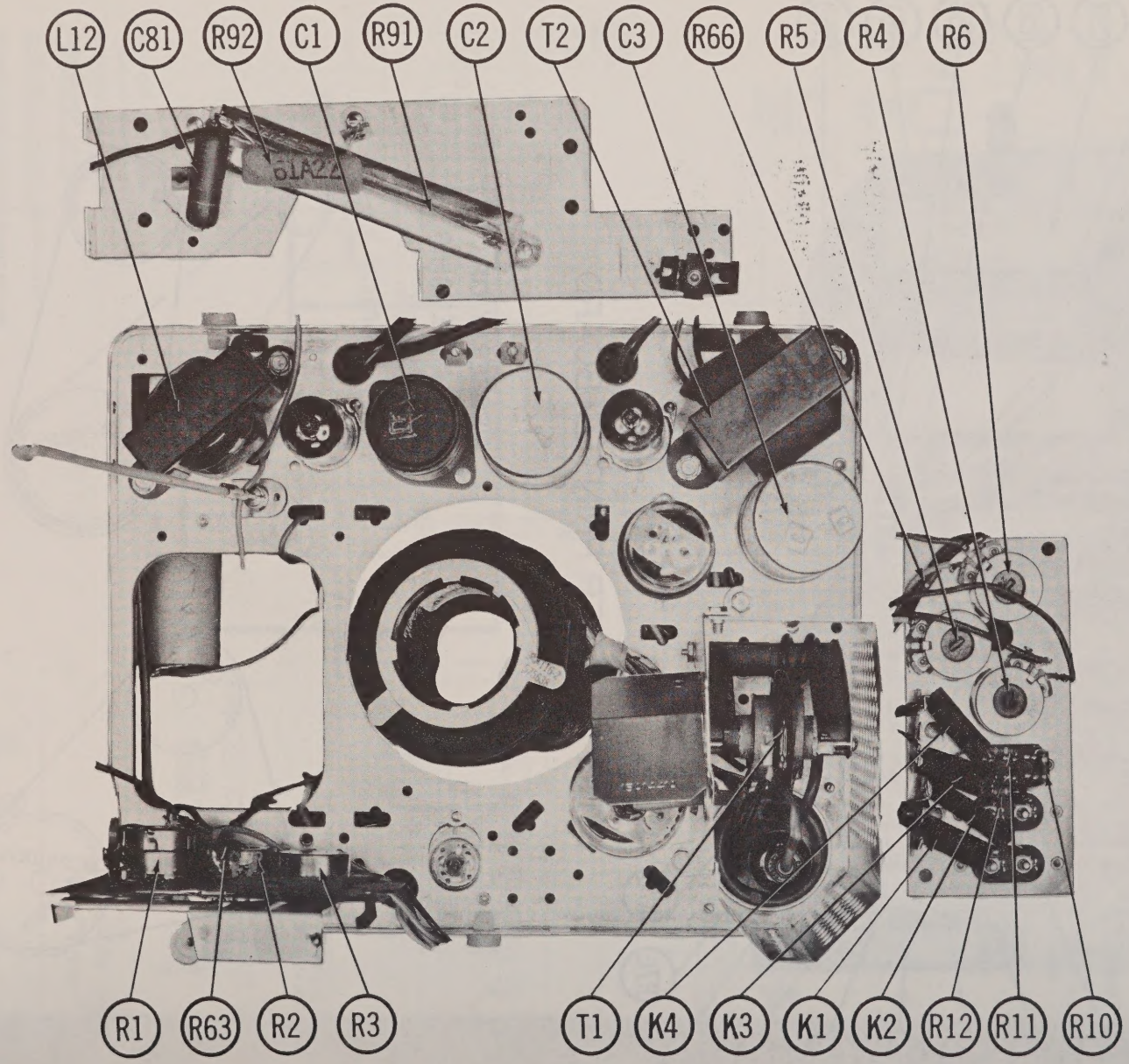


EARLY PRODUCTION VERSIONS

LATER PRODUCTION VERSIONS

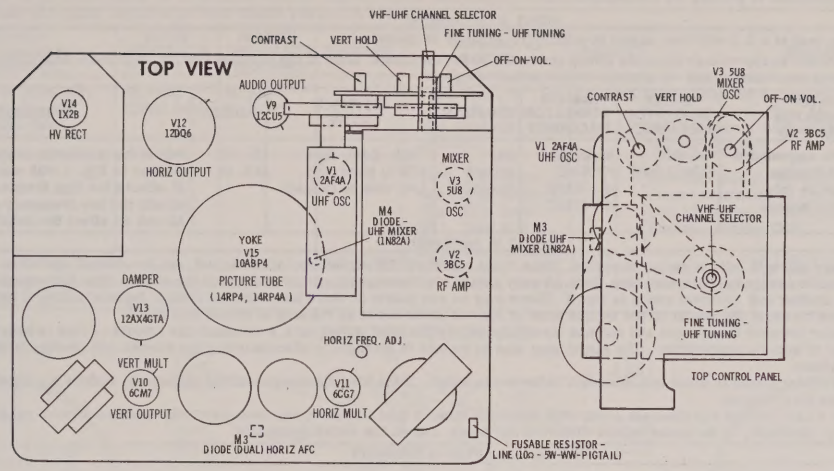
UHF-VHF DRIVE CORDS

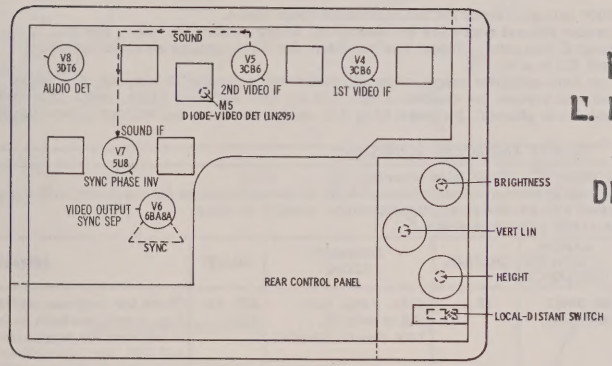
SET 351 FOLDER 1



CHASSIS TOP VIEW

TUBE PLACEMENT CHART





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TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

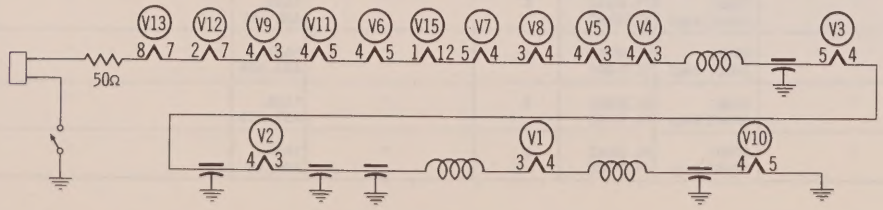
POWER SUPPLY FAILURE
No raster, no sound - Fusible Resistor (R92), Rectifiers (M1, M2)

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - V4, V5, Diode (M5), V9
No pic, no sound, has snow - V1 (UHF), V2, V3, V9
No pic, has sound, has raster - V6, V15, V9
Has pic, no sound - V7, V8, V9

SYNC FAILURE
No vert. sync - V6, V7, V10
No horiz. sync - V6, V7, Diode (M3), V11
No vert. or horiz. sync - V6, V7

SWEEP FAILURE
No raster, has sound - M3, V11, V12, V13, V14, V15
No vertical deflection - V10
Poor vert. linearity or foldover - V10
Poor horiz. linearity or foldover - V11, V12, V13
Narrow picture - V11, V12, V13, M1, M2
Vert. off freq. - V6, V7, V10
Horiz. off freq. - V6, V7, M3, V11

Since this receiver employs tubes used in a series filament network, an open filament in any tube in the series will cause the set to be inoperative. (See circuit below:)



ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The high voltage lead should be securely taped and kept away from the chassis.
Use an isolation transformer to protect the test equipment.

VIDEO IF ALIGNMENT

Connect the negative lead of a 2.5 volt bias supply to point Ⓒ. Positive to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
Use only enough sweep generator output to provide usable pattern on scope.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Direct	High side to ungrounded tube shield floating over converter tube. Low side to chassis.	44.4MC (10MC Swp)	41.25MC 43.5MC 45.75MC 47.25MC	Any unused channel	Vert. Amp. thru 47K to point Ⓐ. Low side to chassis.	A1, A2, A3, A4	Adjust for maximum response curve similar to Fig. 1 with markers as indicated. A1 affects the high frequency side and A2 affects the low frequency side of curve. A3 and A4 affect the amplitude and tilt.

SOUND IF ALIGNMENT

1. Turn the set on and allow 15 minute warm-up period. Tune in the strongest TV signal available. Adjust set for normal operation.
2. Using a non-metallic hexagonal alignment tool, turn A5 very slowly clockwise until a buzz is heard in the sound. Then turn counter clockwise until the loudest and clearest sound is heard. There may be two points at which the sound is loudest (approximately $\frac{1}{2}$ turn apart). The slug may be set at the center of the second point of loudest sound noted as the slug is turned clockwise.
3. Using an attenuator between the antenna and antenna terminals reduce the input signal until a considerable amount of hiss is heard in the sound similar to super-regeneration. The signal may also be reduce in strength by disconnecting the antenna and placing in the vicinity of the terminals.
4. Carefully adjust A6 for clearest sound and minimum noise in the sound. If the hiss disappears during alignment, reduce the signal still further until the hiss returns.
5. Carefully adjust A7 for loudest and clearest sound with minimum hiss. If this alignment has been correctly made no further adjustment should be necessary. However, if the sound is still distorted and noisy, repeat the entire procedure.

VHF OSCILLATOR ALIGNMENT

1. Turn the set on and allow 15 minutes warm-up period.
2. Tune in the highest high band channel operating in the area and adjust controls for a normal picture.
3. Set the fine tuning in the center of its range by rotating in either direction approximately two turns and then back one-fourth turn.
4. Remove the channel selector, fine tuning and UHF indicator knobs and the escutcheon under knobs.
5. Using a non-metallic screwdriver, adjust the proper channel screw (A8 for channel 13, A9 for channel 12, etc. - See Fig. 2) for best picture. (Note that the sound is not strongest at this point). Repeat this procedure for the remaining channels, adjusting them in order from the highest channel to the lowest (A8 to A19).

If the adjustment screws for channel 12 thru 7 do not have sufficient range, make adjustment using channel 13 slug A8, then check adjustment of each lower channel. If channel adjustment screws for channels 5 thru 2 do not have sufficient range, make adjustment of channel 6 slug A15, then check adjustment of each lower channel. If channel 13 or 6 is used in the area, use the next lower channel for extending the adjustment range.

VHF RF AND MIXER ALIGNMENT

Connect the negative lead of a 3 volt bias supply to point Ⓒ. Positive to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide usable pattern on scope.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
2.	Two 120Ω Carbon Resistors	Across VHF antenna terminals with 120Ω in each lead.	213MC (10MC Swp)	211.25MC 215.75MC	13	Vert. Amp. thru 10K to point Ⓑ. Low side to chassis.	A20, A21, A22	Check for response curve similar to Fig. 3 with markers as indicated. A20 is adjusted for maximum amplitude. A21 and A22 are adjusted for proper bandwidth and marker position.
3.	"	"	177MC (10MC Swp)	175.25MC 179.75MC	7	"	A23, A24	Adjust for curve similar to Fig. 3.
4.	"	"	213MC (10MC Swp)	211.25MC 215.75MC	13	"	A25	Check for response curve similar to Fig. 3. If necessary, retouch A20 for proper shape of response. Adjust A25 (ground lead of C19) for proper bandwidth. To broaden bandwidth, move lead nearer mixer grid ground strap and vice versa.
5.	"	"	177MC (10MC Swp)	175.25MC 179.75MC	7	"	A26	Check for response curve similar to Fig. 3. If bandwidth is too broad, move lead (A26) closer to capacitor body (C17). If too narrow, move lead away from capacitor body. Use care so as not to disturb bandwidth of channels 6 thru 2.
6.	"	"	207MC (10MC Swp)	205.25MC 209.75MC	12	"		Check for response similar to Fig. 4 making sure it falls within these limits. If not make compromise adjustments by repeating steps 2 thru 5 being careful not to disturb other channels in operation.
			201MC (10MC Swp)	199.25MC 203.75MC	11			
			195MC (10MC Swp)	193.25MC 197.75MC	10			
			189MC (10MC Swp)	187.25MC 191.75MC	9			
			183MC (10MC Swp)	181.25MC 185.75MC	8			
7.	"	"	85MC (10MC Swp)	83.25MC 87.75MC	6	"	*A27 A28, A29	Check for response curve similar to Fig. 3. If necessary, adjust (by compressing or expanding coil turns) coil whose "A" number is preceded by (*) for maximum amplitude. Adjust others for proper bandwidth and marker positions.
8.	"	"	79MC (10MC Swp)	77.25MC 81.75MC	5	"	*A30, A31, A32	"
9.	"	"	69MC (10MC Swp)	67.25MC 71.75MC	4	"	*A33, A34, A35	"
10.	"	"	63MC (10MC Swp)	61.25MC 65.75MC	3	"	*A36, A37, A38	"
11.	"	"	57MC (10MC Swp)	55.25MC 59.75MC	2	"	*A39, A40, A41	"

ALIGNMENT INSTRUCTIONS (cont)

UHF IF ALIGNMENT

Connect bias as under "VHF RF And Mixer Alignment".
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide usable pattern on scope.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
12.	100Ω Carbon Resistor	High side to point (D). Low side to chassis. Remove 1N82 (M4).	43.5MC (10MC Swp)	41.25MC 45.75MC	UHF	Vert. Amp. to point B thru 10K. Low side to chassis.	A42, A43, A44	Adjust A42 for maximum amplitude of response curve (Fig. 5). Adjust A43 and A44 for proper bandwidth, symmetry and marker position.
13.	"	"	"	"	"	Vert. Amp. thru decoupling network (Fig. 6) to point (A). Low side to chassis.		Increase bias to -6 volts. Check for response similar to Fig. 7. If necessary, step 12 making compromise adjustment. Replace crystal (M4).

UHF ALIGNMENT

This portion of the receiver has been properly aligned at the factory and is very stable. Alignment of this portion should not be required in the field.

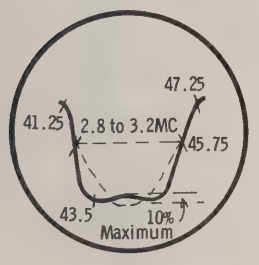


FIG. 1

OSCILLATOR ADJUSTMENTS

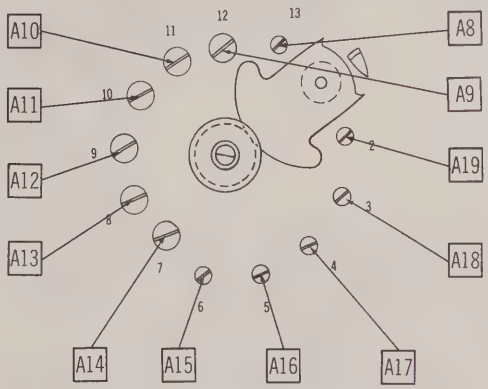


FIG. 2

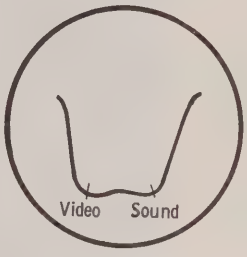


FIG. 3

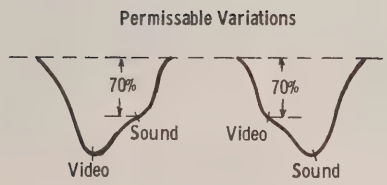


FIG. 4

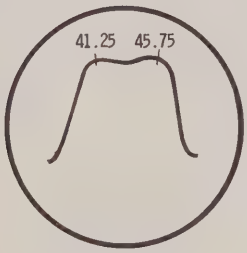


FIG. 5

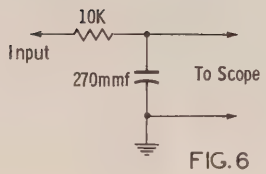


FIG. 6

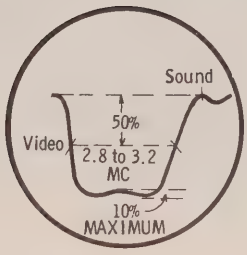
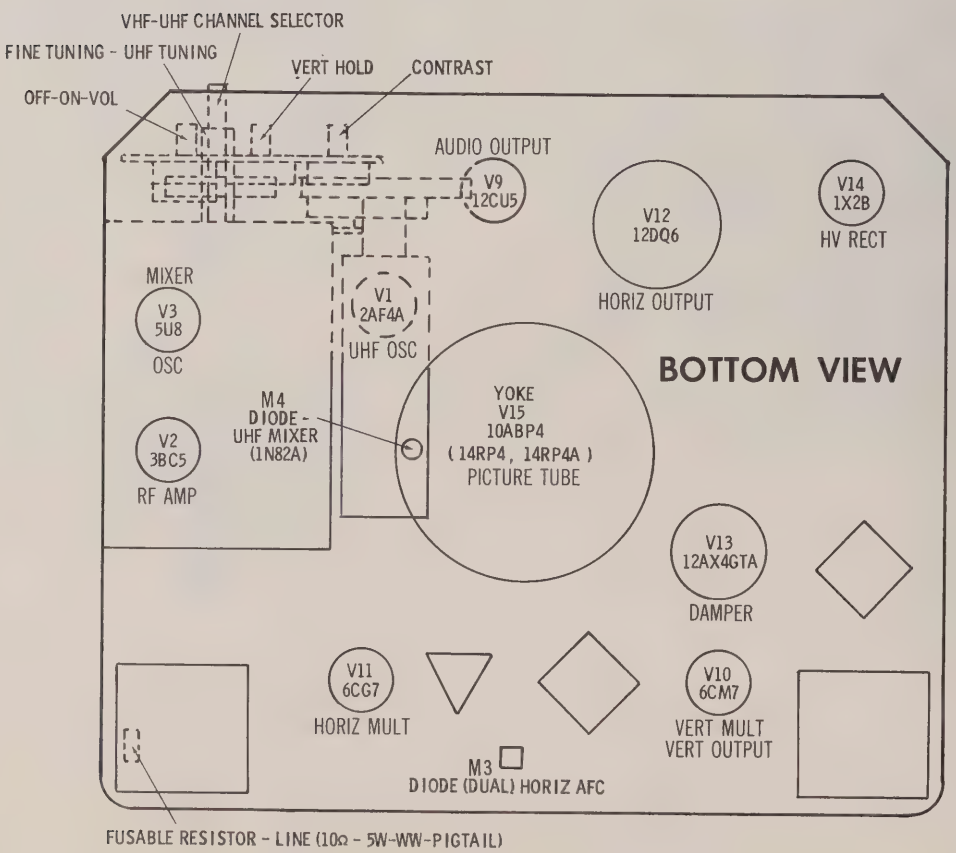


FIG. 7

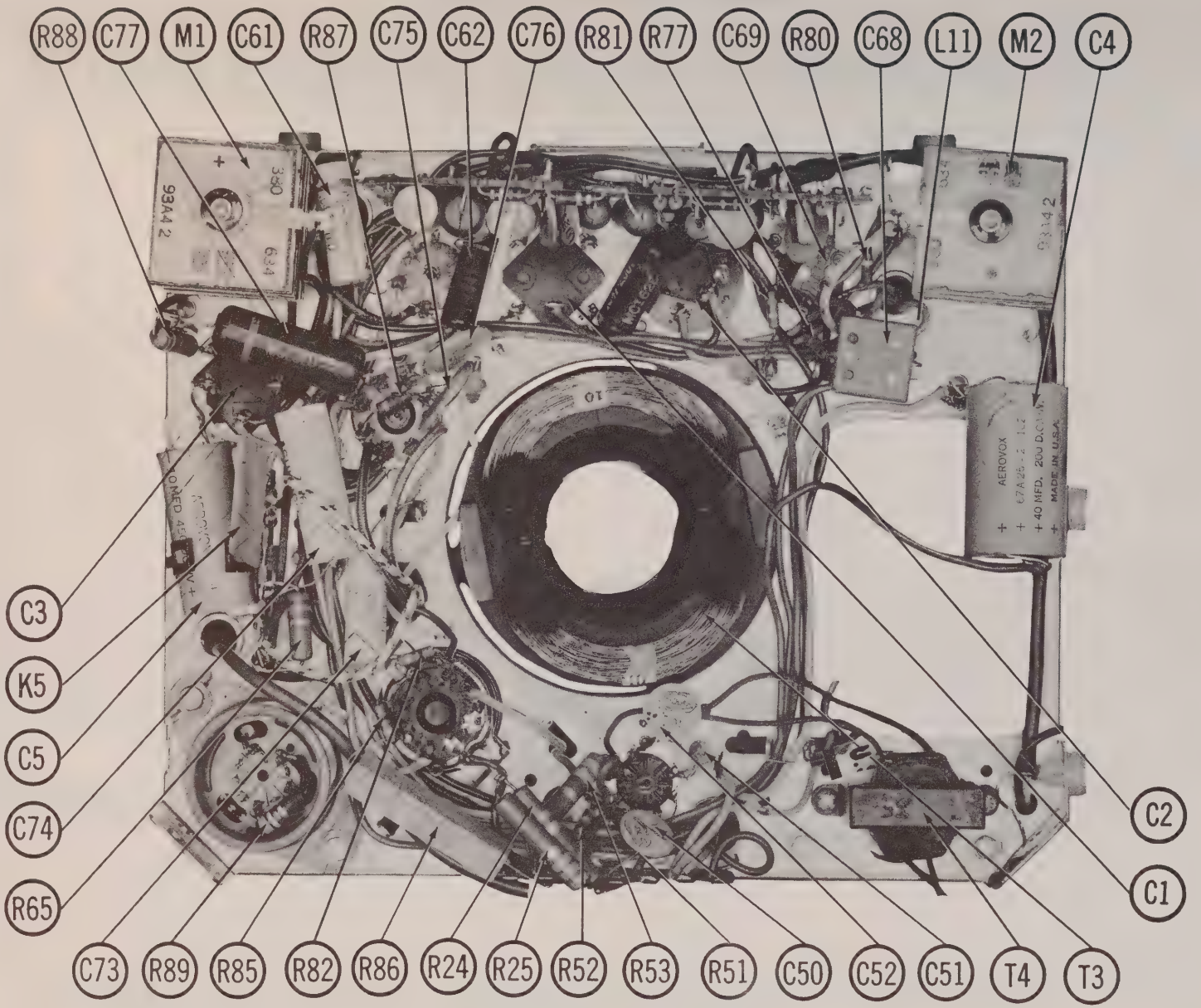
RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	2AF4A	*† 18K	*8200Ω	2Ω	1.5Ω	*† .1Ω	*8200Ω	*† 18K		
V2	3BC5	1Meg	0Ω	2Ω	3Ω	▲ 330Ω	▲ 10K	0Ω		
V3	5U8	■ 12K	5Meg	■ 15K	3Ω	4Ω	■ 1000Ω	0Ω	0Ω	10K
V4	3CB6	▲ 5600Ω	▲ 68Ω	4Ω	5Ω	† 400Ω	† 400Ω	75K		
V5	3CB6	.1Ω	100Ω	5Ω	6Ω	■ 330Ω	■ 330Ω	0Ω		
V6	6BA8A	0Ω	2.7Meg	† 330K	10Ω	9Ω	● 10Ω	1.3Meg	100K	‡6800Ω
V7	5U8	† 10K	2.8Ω	■ 20K	6.5Ω	7.5Ω	■ 1000Ω	120Ω	47K	330Ω
V8	3DT6	3.8Ω	330Ω	6.5Ω	6Ω	† 330K	■ 8200Ω	560K		
V9	12CU5	100K	750K	12Ω	14Ω	750K	† 390Ω	† 620Ω		
V10	6CM7	‡8200Ω	NC	160K	1.5Ω	0Ω	● ‡3Meg	220K	1Meg	● 1500Ω
V11	6CG7	† 5600Ω	550K	1800Ω	12Ω	10Ω	† 100K	150K	1800Ω	0Ω
V12	12DQ6	TP	17Ω	TP	† 10K	330K	TP	14Ω	0Ω	TOP CAP ‡25Ω
V13	12AX4GTA	TP	TP	550K	NC	59Ω	TP	17Ω	19Ω	
V14	1X2B	PINS 1 THRU 9 HAVE INFINITE RESISTANCE								TOP CAP ‡185Ω
V15	10ABP4	9Ω	56K	Pin 6 56K	Pin 10 ‡6800Ω	Pin 11 ● 200K	Pin 12 7.5Ω			

* MEASURED IN "UHF" POSITION.
† MEASURED FROM OUTPUT OF M2.
■ MEASURED FROM 135V SOURCE.
‡ MEASURED FROM PIN 3 OF V13.
● THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
▲ MEASURED FROM PIN 7 OF V4.
NC NO CONNECTION
TP TIE POINT

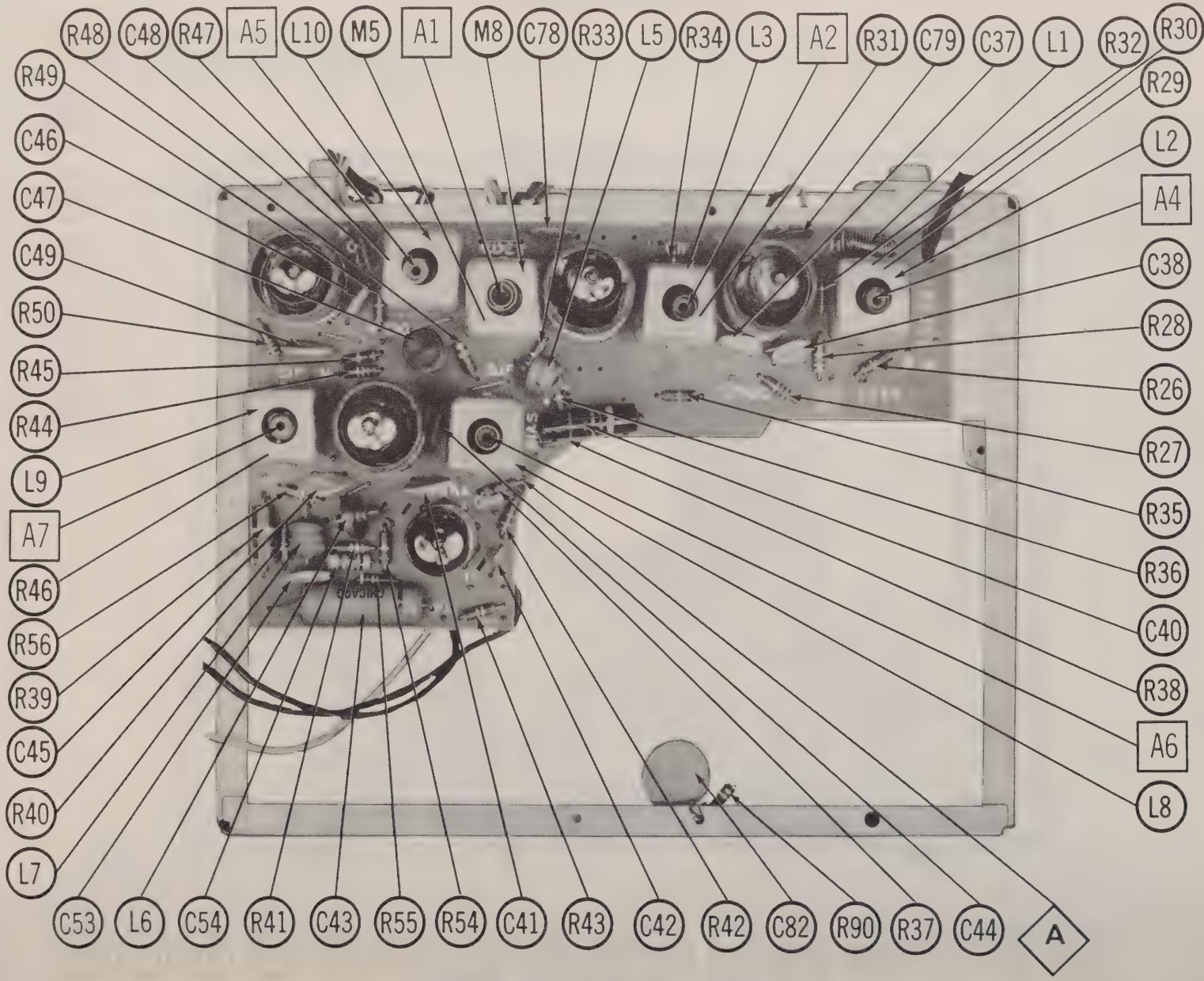


TUBE PLACEMENT CHART

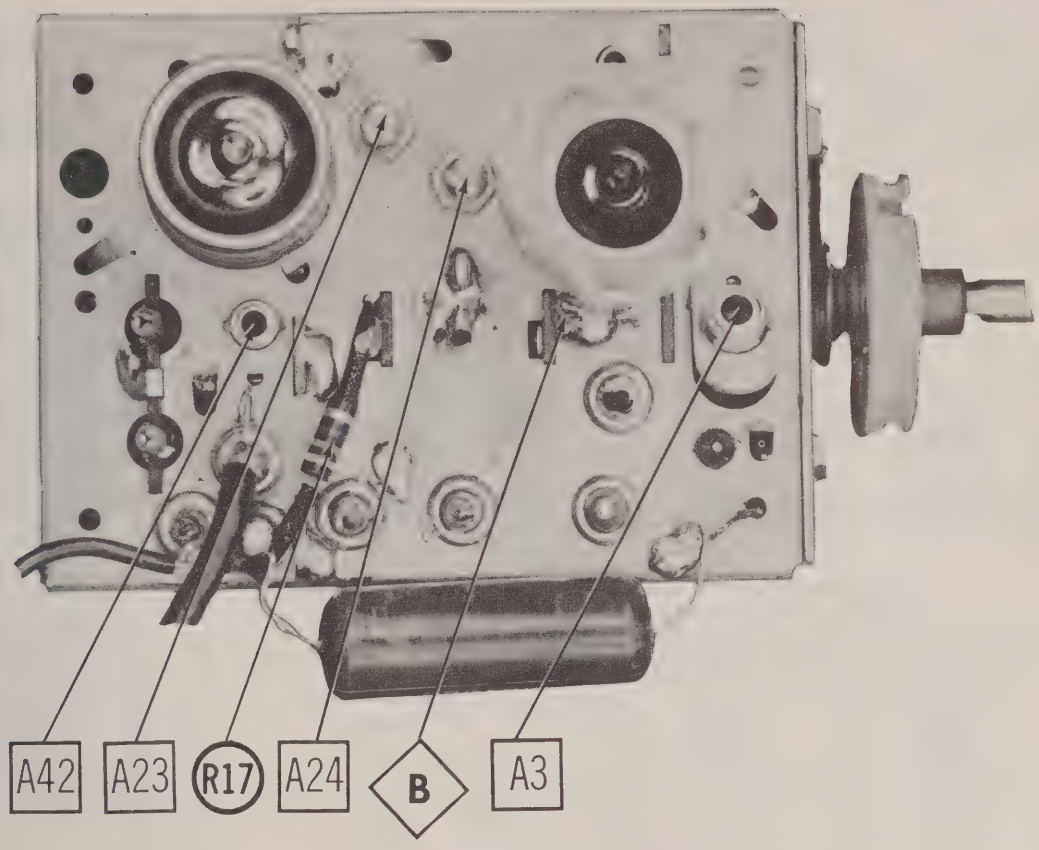


CHASSIS-BOTTOM VIEW

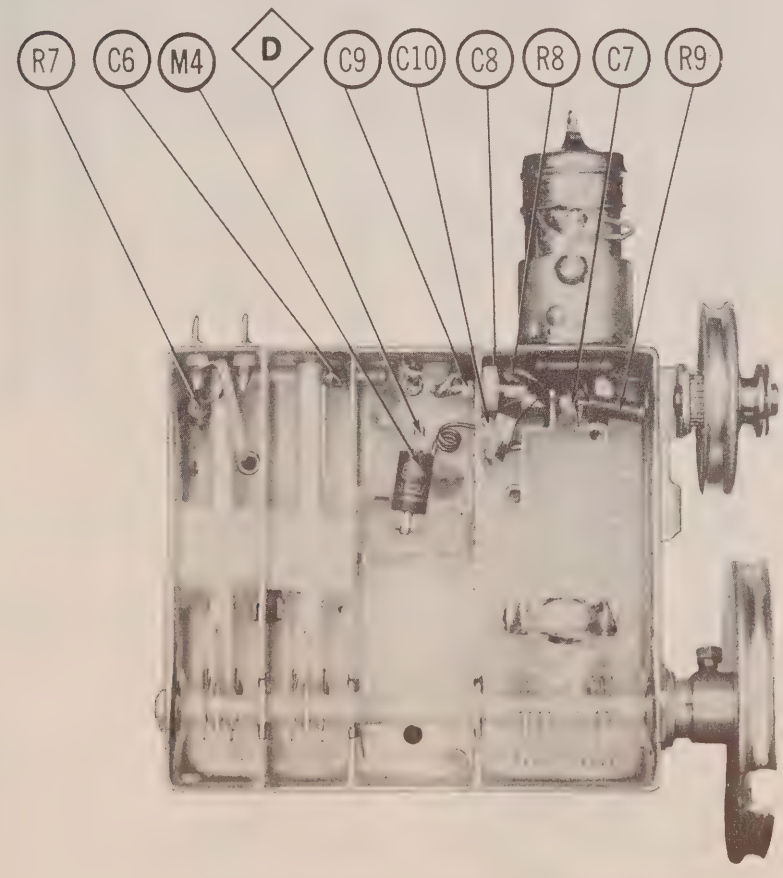
ADMIRAL CHASSIS
14UY3B, C



VIDEO IF PRINTED BOARD



VHF TUNER TOP VIEW



UHF TUNER SIDE VIEW

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No	USE	TYPE	NOTES
V1	UHF Osc.	2AF4A	
V2	RF Amp.	3DC5	
V3	Mixer - Osc.	5U8	
V4	1st Video IF Amp.	3CB6	
V5	2nd Video IF Amp.	3CB6	
V6	Video Output-Sync Sep.	6BA8A	
V7	Sound IF -Sync Phase Inv.	5U8	

ITEM No	USE	TYPE	NOTES
V8	Audio Det.	3DT6	
V9	Audio Output	12CU5	
V10	Vert. Mult. - Vert. Output	6CM7	
V11	Horiz. Mult.	6CG7	
V12	Horiz. Output	12DQ6	
V13	Damper	12AX4GTA	
V14	HV Rectifier	1X2B	

PICTURE TUBE

ITEM No	REPLACEMENT DATA				NOTES
	ADMIRAL PART No.	CBS PART No.	GENERAL ELECTRIC PART No.	SYLVANIA PART No.	
V15	10ABP4 14RP4 14RP4A		14RP4 14RP4A ①	10ABP4B 14RP4 14RP4A ②	① Aluminized ② Silver Screen "85"

ELECTROLYTIC CAPACITORS

ITEM No	RATING		REPLACEMENT DATA						
	CAP.	VOLT	ADMIRAL PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1	100	150	67D15-183	AFHS1-22	XA0241	FP116	TMS-22	S-090	TVL-1423
C2	100	300	67D15-134	AFHS1-36-05	A0340	FP150	TMS-40	S-190	TVL-1750
C3A	▲100	300	67D15-135	AFH4-114-90		FP335		T-375	R2367 †
B	●60	150							
C	▲20	50							
C4	40	300	67A25-2	PRS250V40	BR4025	TC58	TD-40-250	FM-2540	TVA-1511
C5	10	450	67A4-22 (Note 1)	PRS500V10	BR1045	TC72	TD-10-450	MT-4710	TVA-1705

Note 1. Some versions may use 10MFD ② 500V part #67A4-34 in this application.
† Non-catalog item.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	ADMIRAL PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C6	33		94D112-52							
C7			94D112-61							
C8	1000		94DL2-51	EF-001	MFT-1000				503C-D1	
C9	1000		94D112-51	EF-001	MFT-1000				503C-D1	
C10	1000		94D112-51	EF-001	MFT-1000				503C-D1	
C11	7.5		94D77-78							
C12	25		94C118-51	N750-S1 25	TCN-25	C10Q25U	TC7-25		5TCU-Q25	
C13	5-3		94C118-54		829-3		3115-D	CT565A		
C14	1000		94C118-53	BPD-001	DD-102	BYA5D1	ED-1000	DC521	5HK-D1	
C15	1000		94C118-52	EF-001	MFT-1000				503C-D1	
C16	2.7		94C118-55							
C17	1.2		94C118-56	NP0-S1 1	TCZ-1		TCO-1		5TCCB-V1	
C18	1000		94C118-52							
C19	47		94C118-57	NP0-S1 47	TCZ-47	C10Q47C	TCO-47		5TCC-Q47	
C20	10000		94C118-60	BPD-01	DD-103	BYA5S1	ED-01	DC511	5HK-S1	
C21	.22	200	94C25-55	P288N-22		CUB2P22		GEM-2022	2TM-P22	
C22	5-3		94C118-54		829-3		3115-D	CT565A		
C23	800		94C118-65	BPD-0008	DD-801				5GA-T8	
C24	1000		94C118-52	EF-001	MFT-1000				503C-D1	
C25	1000		94C118-61	EF-001	MFT-1000				503C-D1	
C26	5		94C118-63	NP0-S1 5	TCZ-5	C10V5C	TCO-5	ZT-555	5TCCB-V47	
C27	1.5		94C118-59	NP0-S1 1.5	TCZ-1.5	C10V15C	TCO-1.5	ZT-5515	5TCCB-V15	
C28	5		94C118-64							
C29	1		94C118-62							
C30	39		94C118-58							
C31	1000		94C118-52	EF-001	MFT-1000				503C-D1	
C32	1000		94C118-52	EF-001	MFT-1000				503C-D1	
C33	1000		94C118-53	BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C34	1000		94C118-53	BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C35	1000		94C118-52	EF-001	MFT-1000				503C-D1	Note 2
C36	120		65D6-109							
C37	5000		65D10-5	BPD-005	DD-502	BYA6D5	ED-005	DC525	5HK-D5	
C38	800			BPD-0008	D8-821	BYAUDT82	ED-820		5GA-T82	
C39	5		65D10-22	N750-S1 5	TCN-5	C10V5U	TC7-5	NT-555	5TCCB-V5	Note 3
C40	.047	200	64C25-80	BPD-05	DF-503	CUB2S47		GEM-2147	2TM-S47	
C41	10000		65D10-3	BPD-01	DD-103	BYA5S1	ED-01	DC511	5HK-S1	
C42	100		65C44-13	NP0-S1 100	TCZ-100	C10T1C	TCO-100	ZT-531	5TCC-T1	
C43	.1	400	P468N-1	DF-104	CUB4P1			GEM-401	4TM-P1	
C44	1000		65D10-6	BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C45	10000		65C44-2	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C46	1000		65D10-53	BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C47	.047	200	64B16-55		BC2S47J			ACE6147	2TM-S47	
C48	5000		65D10-5	BPD-005	DD-502	BYA6D5	ED-005	DC525	5HK-D5	
C49	10000		65C44-2	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C50	10000		65D10-3	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C51	330		65D10-118	BPD-00033	DD-331	LI0T33	ED-330	UC-5333	5GA-T33	
C52	10000		65D10-3	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C53	10000		65C44-2	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C54	150		65C44-9	N750-S1 150	TCN-150	C10T15U	TCO-150		5TCU-T15	
C55	2200		65D10-111	BPD-0022	D6-222	BYA10D22	ED-0022	UC-5222	5GA-D22	
C56	10000		65C44-2	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C57	4700		65D10-112	BPD-0047	DD-472	BYA10D47	ED-0047	UC-5247	5HK-D47	
C58	.047	600	64C25-54	BPD-05	DF-503	CUB6S47		GEM-4147	4TM-S47	
C59	.033	600	64C24-10	BPD-03	DF-303	CUB6S33		GEM-6133	6TM-S33	
C60	.047	600	64C25-9	BPD-05	DF-503	CUB6S47		GEM-6147	6TM-S47	
C61	.047	200	64C24-9	BPD-05	DF-503	CUB2S47		GEM-2147	2TM-S47	
C62	.001	1600	64A2-28	P188N-001		CUB16D1		GEM-1621	16TM-D1	
C63	.001	400	64C25-30	BPD-001	DD-102	CUB4D1	ED-001	GEM-421	4TM-D1	
C64	.001	400	64C25-30	BPD-001	DD-102	CUB4D1	ED-001	GEM-2147	4TM-D1	
C65	.047	200	64C25-59	BPD-05	DF-503	CUB2S47		GEM-2147	2TM-S47	
C66	4700		65C44-21	BPD-0047	DD-472	BYA10D47	ED-0047	UC-5247	5HK-D47	
C67	.022	200	64C25-86	BPD-03	DF-303	CUB2S22		GEM-2122	2TM-S22	
C68	3900	500	65B21-392	1464-00039		1R5D39			MS-339	
C69	390	500	65B21-391	1469-00039		5R5T39			MS-339	
C70	270	500	65B21-271	1469-00027		5R5T27			MS-327	
C71	330	500	65B21-331	1469-00033		5R5T33			MS-333	
C72	10000		65D10-61	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C73	.047	400	64C25-34	BPD-05	DF-503	CUB4S47		GEM-4147	4TM-S47	
C74	.1	600	64C25-7	P688N-1	DF-104	CUB6P1		GEM-601	6TM-P1	
C75	235	2000	65D10-115							
C76	250	3000	65D10-114							
C77	.068	1000	64A2-34	P1088N-068		CUB10868				
C78	5000		65C44-1	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C79	5000		65C44-1	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	

CAPACITORS (cont)

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	ADMIRAL PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C80	5000		65C44-1	BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C81	.01	600	64A2-35	BPD-01	DD-103	CUB6S1	ED-01	GEM-611	6TM-S1	
C82	10000	1400	65D10-65	P1688N-01				GEM-1611	20HBK-S1	

Note 2. Early production used with 110MMF capacitor (Part #65D10-122) in this application.
Note 3. Alternate part #65C44-9.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	ADMIRAL PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	300K	½	75C1-77			Q13-132	U48	Volume - Note 1
B	Switch					76-1	US-26	
R2A	200K	½	75C20-45	B-46	A47-200K-S	Q11-129	U43	Vert. Hold - Note 2
B	Shaft			Not Req.	KSB-3	Not Req.	Not Req.	
R3A	100Ω	½	75C13-76	B-505	A47-100Ω-S	Q17-108	U3	Contrast - Note 3
B	Shaft			Not Req.	KSB-3	Not Req.	Not Req.	
R4A	100K	½	75C20-44	AB-40	A47-100K-S	Q11-128	PTA15L	Brightness - Note 4
B	Shaft			AK-19	RN-3	TQ	Not Req.	
R5A	3000Ω	½	75C20-42	AB-8	A47-3000-S	Q11-112	SU-8	Vert. Lin.
B	Shaft			AK-19	RN-3	TQ	Not Req.	
R6A	2.5Meg	½	75C20-41	AB-83	A47-2.5Meg-S	Q11-239	SU-565	Height
B	Shaft			AK-19	RN-3	TQ	Not Req.	

Note 1: Alternate part #75C1-81 used in models TS140, TS141, TS142, TS143, TS144AL & TS145AL.
Note 2: Alternate part #75C13-77 used in some versions.
Alternate part #75C13-79 used in models TS140, TS141, TS142, TS143, TS144AL & TS145AL.
Note 3: Alternate part #75C13-78 used in models TS140, TS141, TS142, TS143, TS144AL & TS145AL.
Note 4: Alternate part #75C20-43 used in some versions.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	ADMIRAL PART No.	IRC PART No.	
R7	680K		60B8-684	BTS-680K	
R8	1500Ω			BTS-1500	
R9	8200Ω		60B8-822	BTS-8200	
R10	470Ω		60B8-471	BTS-470	
R11	330Ω		60B8-331	BTS-330	
R12	330Ω		60B8-331	BTS-330	
R13	10K		60B8-103	BTS-10K	
R14	10K		60B8-103	BTS-10K	
R15	15K		60B8-153	BTS-15K	
R16	150K		60B8-154	BTS-150K	
R17	4.7Meg		60B8-475	BTS-4.7Meg	
R18	15K		60B8-153	BTS-15K	
R19	1000Ω		60B8-102	BTS-1000	
R20	12K		60B8-123	BTS-12K	
R21	1200Ω		60B8-122	BTS-1200	
R22	3900Ω		60B8-392	BTS-3900	
R23	220Ω		60B8-221	BTS-220	
R24	27K	2	60B20-373	BTS-27K	
R25	33K	2	60B20-333	BTB-33K	
R26	150K 5%		60B7-154		
R27	330Ω 5%		60B7-331	BTS-330 5%	
R28	330Ω		60B8-331	BTS-330	
R29	5600Ω		60B8-562		
R30	150K 5%		60B7-154		
R31	24K 5%		60B7-243		
R32	68Ω		60B8-68	BTS-68	
R33	330Ω		60B8-331	BTS-330	
R34	100Ω		60B8-101	BTS-100	
R35	1Meg		60B8-105	BTS-1Meg	
R36	4700Ω		60B8-472	BTS-4700	Note 1
R37	100Ω		60B8-101	BTS-100	
R38	2.7Meg		60B8-275	BTS-2.7Meg	
R39	6800Ω	2	60B20-682	BTB-6800	
R40	15K		60B8-153	BTS-15K	
R41	270K		60B8-274	BTS-270K	
R42	1.3Meg 5%		60B7-135	BTS-1.3Meg 5%	
R43	120K		60B8-124	BTS-120K	
R44	18K		60B8-183	BTS-18K	
R45	1000Ω		60B8-102	BTS-1000	
R46	120Ω		60B8-121	BTS-120	
R47	100K		60B8-104	BTS-100K	
R48	560K		60B8-564	BTS-560K	
R49	8200Ω		60B8-822	BTS-8200	
R50	330Ω 5%		60B8-331	BTS-330	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	ADMIRAL PART No.	IRC PART No.	
R51	1.3Meg 5%		60B7-135	BTS-1.3Meg 5%	
R52	1.3Meg 5%		60B7-135	BTS-1.3Meg 5%	
R53	330Ω	2	60B20-331	BTB-330	
R54	2.7Meg		60B8-275	BTS-2.7Meg	
R55	47K		60B8-473	BTS-47K	
R56	330K		60B8-334	BTS-330K	
R57	15K		60B8-153	BTS-15K	
R58	15K		60B8-153	BTS-15K	
R59	220K		60B8-224	BTS-220K	
R60	220K		60B8-224	BTS-220K	
R61	15K		60B8-153	BTS-15K	
R62	2.2Meg		60B8-225	BTS-2.2Meg	
R63	56K		60B8-563	BTS-56K	
R64	1Meg		60B8-105	BTS-1Meg	
R65	6800Ω	1	60B14-682	BTA-6800	
R66	820Ω		60B8-821	BTS-820	
R67	560Ω		60B8-561		
R68	560Ω		60B8-561		
R69	6800Ω		60B8-682		
R70	3300Ω		60B8-332		
R71	3300Ω		60B8-332		
R72	47K	2	60B20-473		
R73	100K 5%		60B7-104		
R74	100K 5%		60B7-104		
R75	470K		60B8-474		
R76	4.7Meg		60B8-475		
R77	5600Ω		60B8-562		
R78	100K		60B8-104		
R79	5600Ω		60B8-562		
R80	150K		60B8-154		
R81	1800Ω		60B8-182		
R82	100Ω		60B8-101		
R83	11Meg 5%		60B7-116		
R84	330K		60B8-334	BTS-330K	
R85	100Ω		60B8-101	BTS-100	
R86	10K	10	61B20-3	PW10-10K	
R87	2200Ω		60B8-222		
R88	33Ω	1	60B14-330	BTA-33	
R89	3.9Ω		60B28-53	BW½-3.9	
R90	470K		60B8-474	BTS-470K	
R91	50Ω 5%	20	61B3-23	2D-50 5%	Note 2
R92	10Ω	5	61A22		
R93	10K		60B8-103	BTS-10K	

Note 1: A 6800Ω resistor used in some versions.
Note 2: Alternate part #61B3-26 may be used in some versions.

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA							
		ADMIRAL PART No.	Halldorson PART No.	Merit PART No.	RCA TYPE No.	Ram PART No.	Stancor PART No.	Thordorson PART No.	Triad PART No.
T1	Horiz. Output Trans.	79B70-1 79C70-1 ①					EO-265*		
T2	Vert. Output Trans.	79B71-1							
T3A	Yoke(90°) Horiz(19MH)	94D117-1 ②							
B	Vert (35MH)								

① Alternate part number.
② Does not includes yoke rear cover & centering device.

*HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

Use Original Width Coil Unless Replacement Type Is Listed

ORIGINAL TERMINAL CONNECTIONS	Halldorson Replacement Connections	Merit Replacement Connections	RCA Replacement Connections	Ram Replacement Connections	Stancor Replacement Connections	Thordorson Replacement Connections	Triad Replacement Connections
3					3		
2					2		
1					1		

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	ADMIRAL PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordorson PART No.	Triad PART No.	
T4	2800Ω	3-4Ω	79D33-13 ①	Z1105 ② ③	A-3025	A-3332	22S46 ①	S-12X	① Alt. part #79D33-14. ② Drill one new mtg. hole. ③ Do not use taps on primary winding.

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	ADMIRAL PART No.	QUAM PART No.	
SP1	3½" 4"	PM PM	3-4Ω 3-4Ω	76B120-1 ① 76B122-1 ②	3A07	① Used in chassis 14UY3B. ② Used in chassis 14UY3C.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		ADMIRAL PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Fil. Choke					.6 Microhenries
L2	1st Video IF	72C132-26				
L3	2nd Video IF	72C132-25				
L4	Series Peaking Coil	73A6-9	19-1002		4606	2 Microhenries
L5	Series Peaking Coil	73B11-1			6148*	696 Microhenries; Wound on 10K resistor.
L6	Series Peaking Coil	73B5-8	19-4250		6130▲	271 Microhenries; Wound on 22K resistor.
L7	Shunt Peaking Coil	73B11-1			6148*	696 Microhenries; Wound on 10K resistor.
L8	1st Sound IF	72C132-20				
L9	2nd Sound IF	72C132-19				
L10	Quadrature Coil	72C132-18				

* Parallel with 10K resistor.
▲ Parallel with 22K resistor.

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES.		REPLACEMENT DATA							NOTES
	PRI.	SEC.	ADMIRAL PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	RCA TYPE No.	Ram PART No.	Thordorson PART No.	
L11	95Ω		94C17-7	19-1576	TV-163	6210				

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA						
	TOTAL DIRECT CURRENT	D.C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ~)	ADMIRAL PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordorson PART No.	Triad PART No.	
L12	150A	59Ω	1.4HY	74B18-19	C5040	C-2994	C-2327	26C41	C-21X ①	

① Drill one new mounting hole.

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	ADMIRAL PART No.	REPLACEMENT DATA
K1	UHF Ant. Input	470MMF, 1Meg	63B10-1	
K2	UHF Ant. Input	470MMF, 1Meg	63B10-1	
K3	VHF Ant. Input	470MMF, 1Meg	63B10-1	
K4	VHF Ant. Input	470MMF, 1Meg	63B10-1	
K5	Vertical Blanking	10000MMF, 10000MMF, 2700Ω, 56000Ω	63C6-12	Aerovox PA-282 Sprague 102C12

RECTIFIERS

ITEM No.	RATING	REPLACEMENT DATA						
	CURRENT (Measured)	ADMIRAL PART No.	FEDERAL PART No.	GENERAL ELECTRIC PART No.	INTERNATIONAL PART No.	MALLORY PART No.	RADIO RECEPTOR PART No.	SARKES TARZIAN PART No.
M1	.150A	93A4-2 ①	1090A ①	1N1005 ③	RS3008L ①	68200 ①	6Q4 ①	300 ①
M2	.150A	93A4-3 ①	1090A ①	1N1005 ③	RS3008L ①	68200 ①	6Q4 ①	300 ①
M3		93A5-2 ①	1215 ① ②		1T1 ① ②			

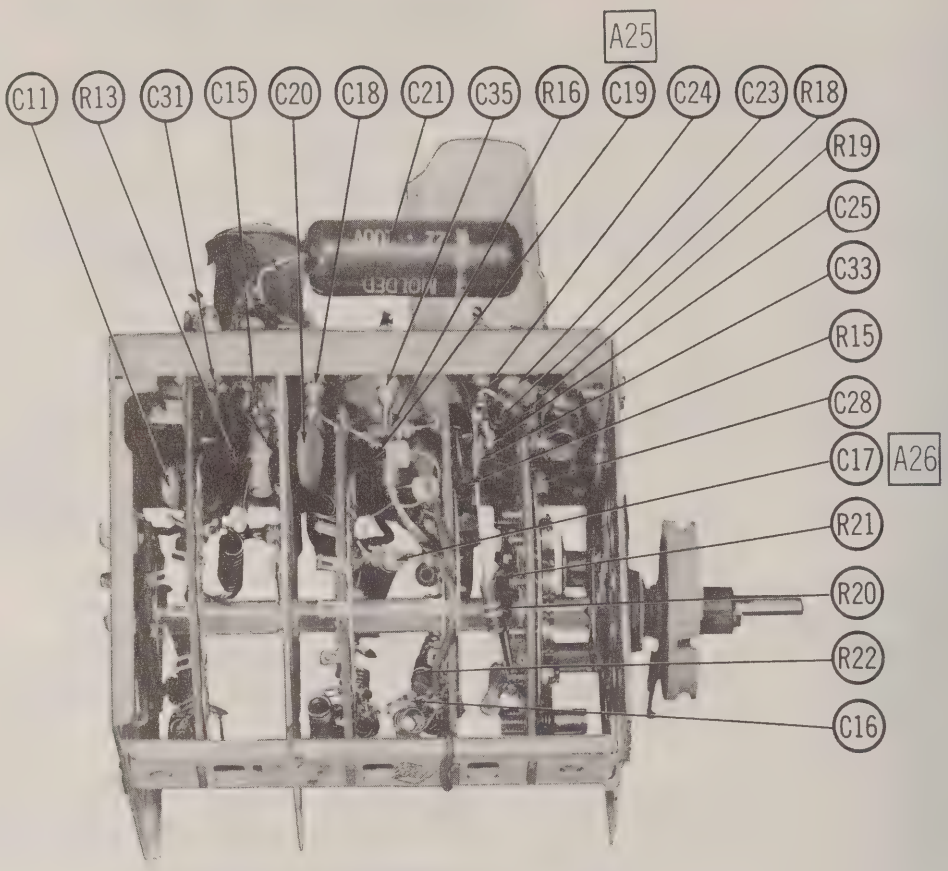
① Selenium type.
② 2 required.
③ Germanium type.

CRYSTAL DIODES

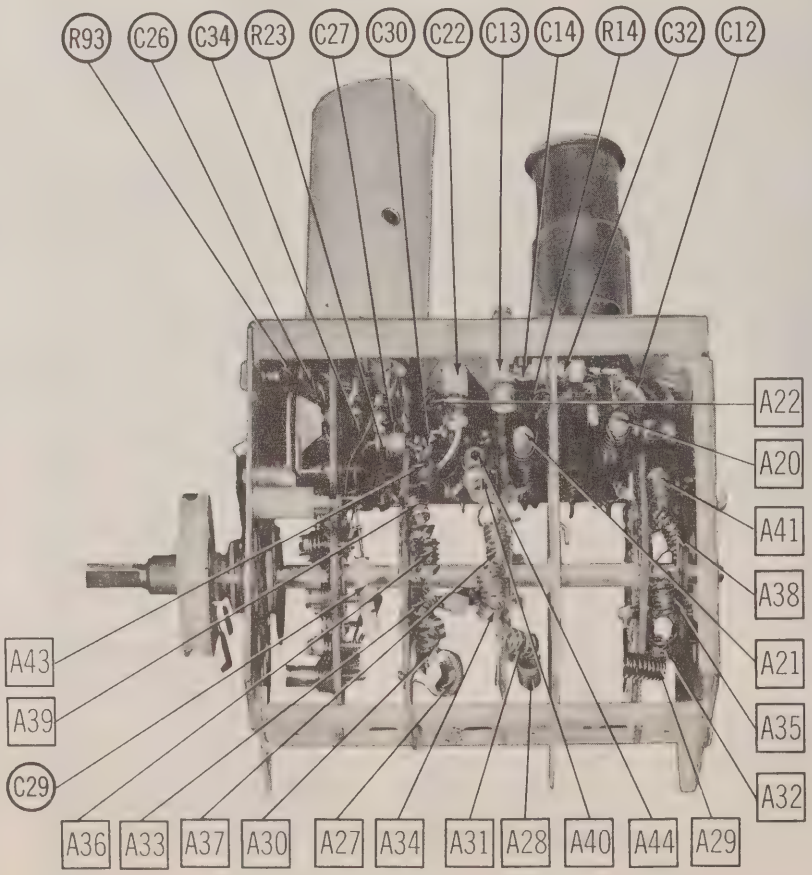
ITEM No.	ORIG. TYPE	REPLACEMENT DATA		NOTES
		ADMIRAL PART No.	SYLVANIA PART No.	
M4	1N82A	94D112-57	1N82A	UHF Mixer (Clip in)
M5	1N295		1N60	Video Detector (Pigtail)

MISCELLANEOUS

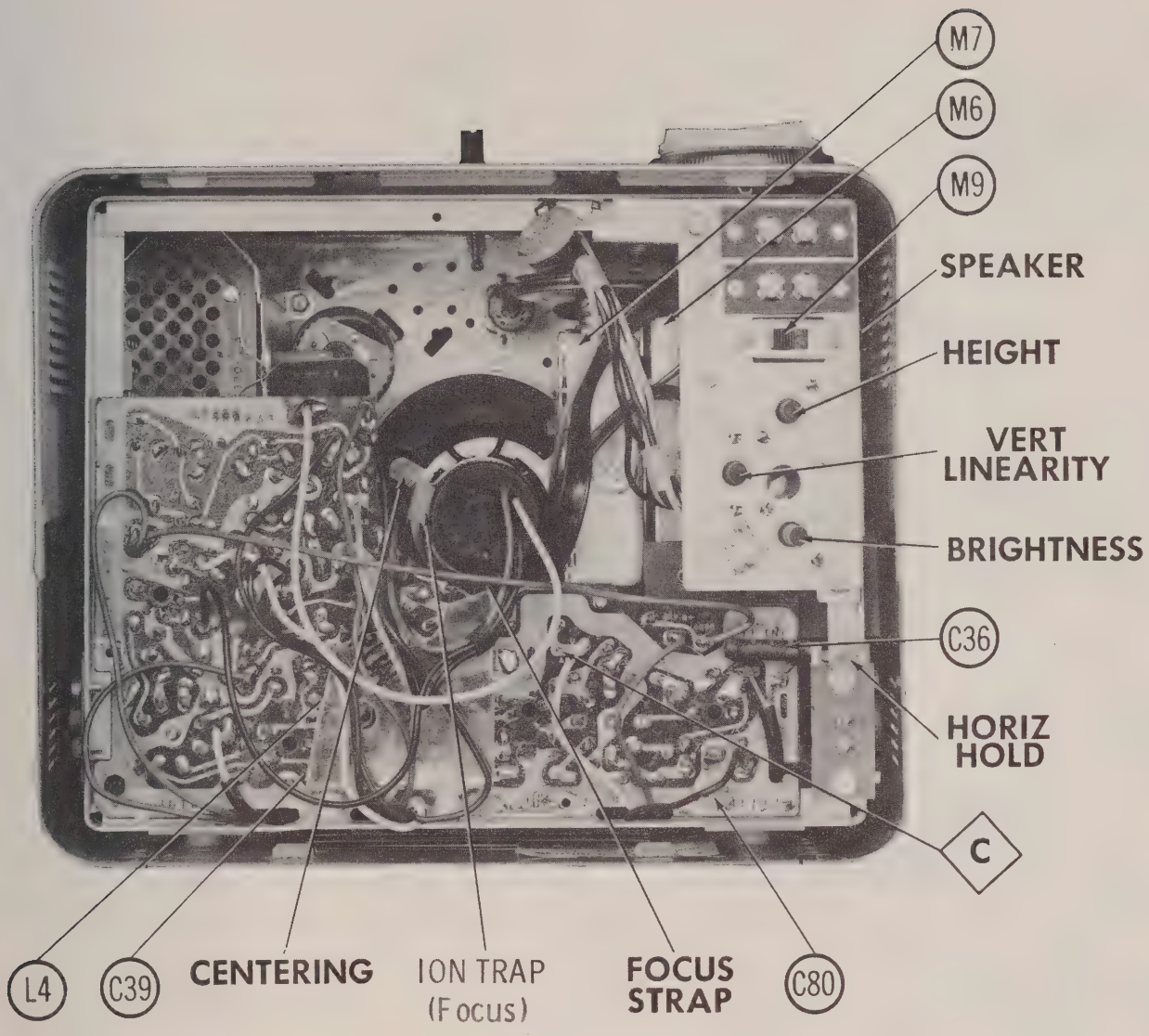
ITEM No.	PART NAME	ADMIRAL PART No.	NOTES
M6	Tuner	94C118-1	VHF, Used in Chassis 14UY3B.
	Tuner	94D124-1	VHF, Used in Chassis 14UY3C.
M7	Tuner	94D112-1	UHF
M8	Crystal Det. Ass'y.	72C176-2	Includes 3rd Video IF, M5, Caps & Coils.
M9	Switch	77B59-3	Local-Distant, Slide Type (DPDT)
M10	Centering Device	94A116-1	Includes Yoke Rear Cover.
M11	Ion Trap	94A15-5	Alternate part #94B15-5.
	Printed Board	A5290-7	Video IF, Includes All Components Except Tubes.
	Printed Board	A5281	Sync & Sweep, Includes All Components Except Tubes.
	Handle	37C141-1	Models TS102, TS103, TS104.
	Handle	37C141-2	Models TS105AL, TS106AL, TS107AL, TS101AL, TS101Z4L, TS103AL.
	Handle	37C141-3	Model TS1010.
	Handle	37C144-1	Models TS141, TS142, TS143.
	Handle	37C144-2	Models TS144AL, TS145AL.
	Safety Glass	21D88-1	Model TS101.
	Safety Glass	21D88-2	Models TS102, TS103, TS104, TS105AL, TS106AL, TS107AL, TS1010, TS101AL, TS102AL, TS103AL.
	Safety Glass	21D90-1	Models TS140, TS141.
	Safety Glass	21D90-2	Models TS142, TS143, TS144AL, TS145AL.



VHF TUNER-LEFT SIDE



VHF TUNER-RIGHT SIDE



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

1. Turn the set on and tune in a TV station, preferably with a test pattern.
2. Set the brightness and contrast controls for a normal picture.
3. Turn the horizontal hold clockwise until the picture loses sync. It may be necessary to switch off channel and back again for picture to lose sync.
4. Turn the horizontal hold slowly counter clockwise until the picture just falls into sync.

PHOTOFACT* Folder

*TRADE MARK

AIRLINE MODELS WG-5130A, WG-5032A, B, C, WG-5035A, B, C, WG-5130A, WG-5132A, B, WG-5135A, B

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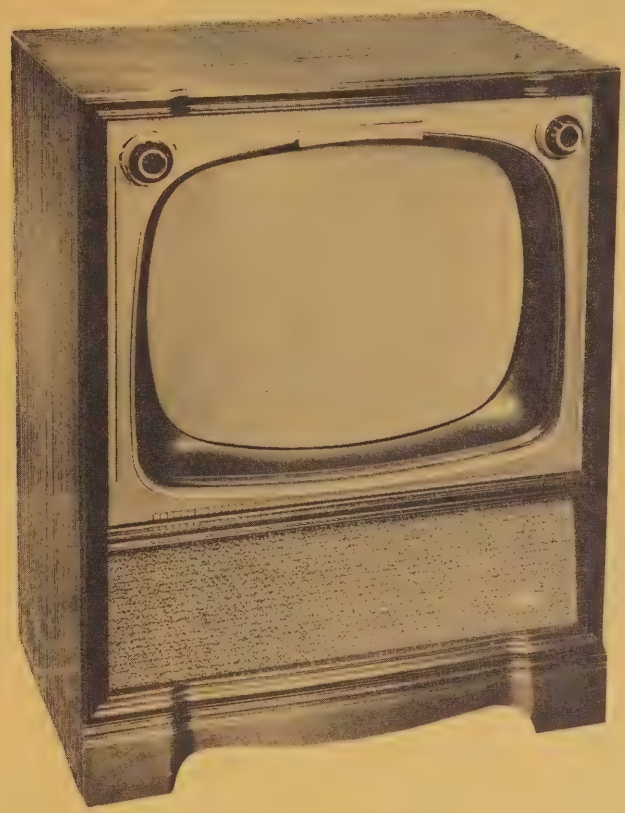

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DENVER, COLORADO

AIRLINE MODELS WG-5130A, WG-5032A, B, C, WG-5035A, B, C, WG-5130A, WG-5132A, B, WG-5135A, B

AIRLINE MODEL WG-5132A

TRADE NAME	Airline Models WG-5030A, WG-5032A, B, C, WG-5035A, B, C, WG-5130A, WG-5132A, B, WG-5135A, B
SUPPLIER	Montgomery Ward & Co., 619 Chicago Avenue, Chicago, Ill.
TYPE SET	Television Receiver
TUBES	Twenty-one
POWER SUPPLY	110-120 Volts AC-60 Cycle — RATING 195 Watts, 1.74 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)

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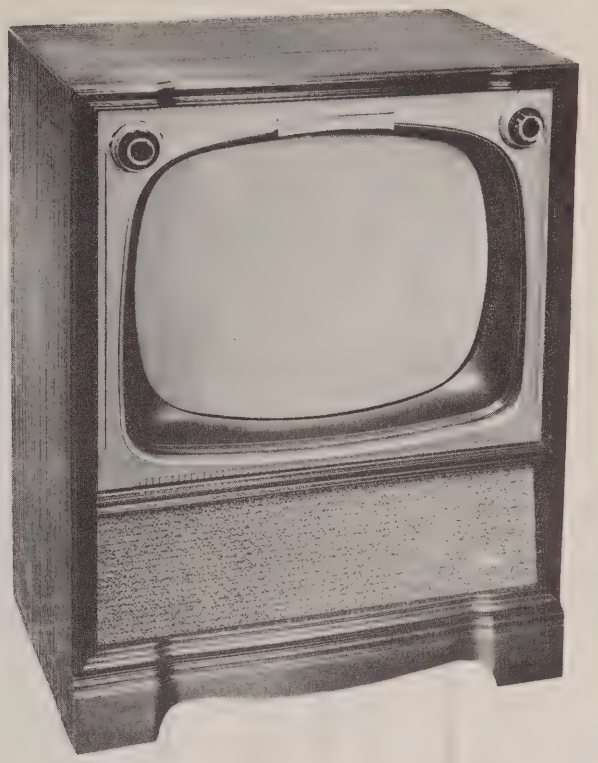

MODEL

WG-5132A

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove 9 push-on type control knobs.
2. Remove 6 wood screws. Remove rear cover.
3. Loosen 4 wood screws holding 2 antenna terminal boards. Remove terminal boards.
4. Remove wood screw holding side chassis brace.
5. Remove 4 speaker wires.
6. Remove 6 speed nuts. Remove 2 speakers.
7. Remove 4 metal screws holding chassis to rear of cabinet.
8. Remove chassis.

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SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustments of the VHF tuner oscillator circuit may be accomplished by removing the channel selector and fine tuning knobs.

PICTURE TUBE SAFETY GLASS CLEANING

For picture tube safety glass cleaning, it is necessary to remove chassis (See disassembly instructions).

SERVICE ADJUSTMENT LOCATION

See tube placement chart on page 5.

FOCUS

Adjust ion trap for best focus consistent with maximum brightness.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

Turn the horizontal hold fully clockwise and adjust the horizontal frequency slug (B1) until the picture is just about to tear out of sync at the top. The picture should then be in good sync with the horizontal hold at center of its rotation. If not, continue to turn the slug until it starts to lose sync in the other direction.

SOUND IF DETECTOR BUZZ ADJUSTMENT

Adjust the buzz control for maximum volume and MINIMUM buzz.

FUSES

One fuse is used for LV power supply protection. (For location see tube placement chart).

CENTERING

Centering is accomplished mechanically by adjusting two magnetic rings around the neck of the picture tube. Rotate the two rings around the neck of the tube until the picture is properly centered.

AIRLINE MODELS WG-5130A, WG-5032A, B, C, WG-5035A, B, C, WG-5130A, WG-5132A, B, WG-5135A, B

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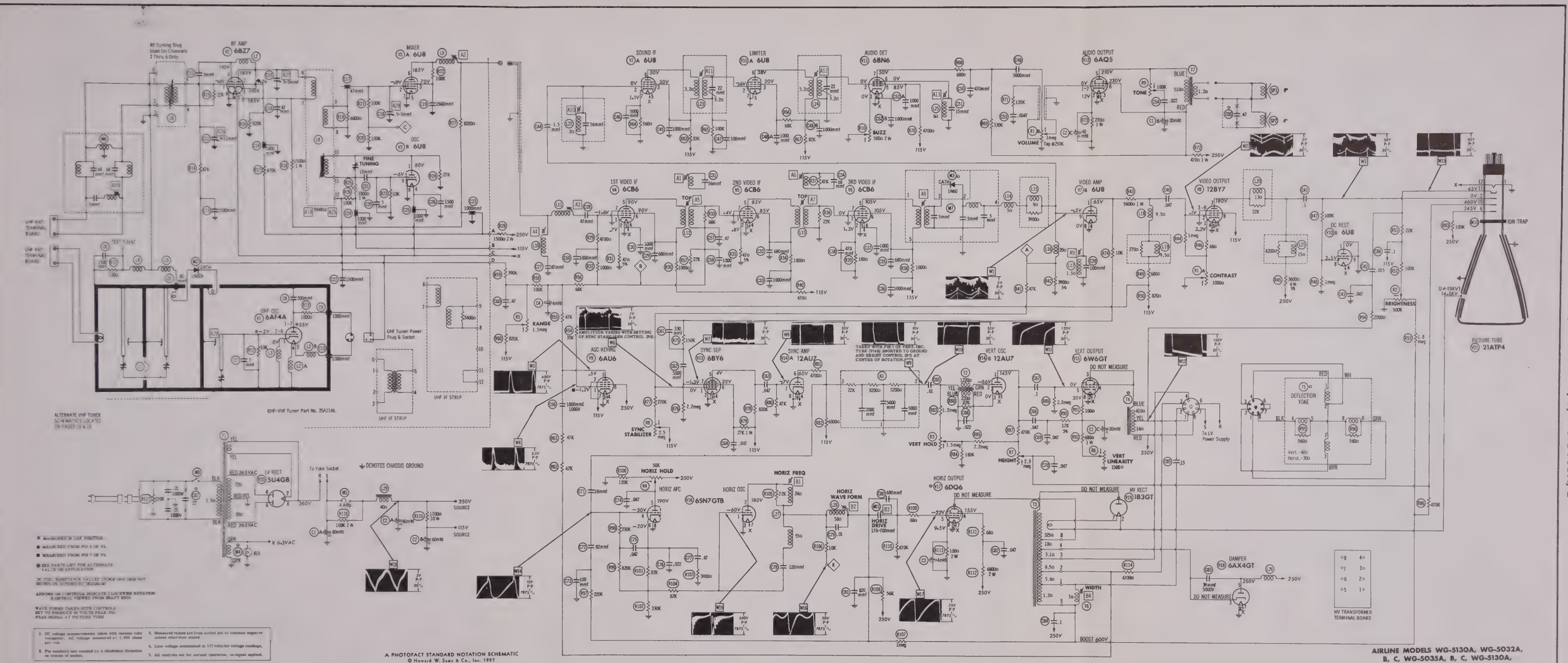
G871

DATE 3-57 SET 351 FOLDER 2



UHF-VHF Tuner Part No. 25A1146.

* MEASURED IN LAST POSITION

◆ MEASURED FROM PIN 3 OF V5.

■ MEASURED FROM PIN 7 OF V5.

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN, ON SCHEMATIC "READING"

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION. CONTROL VIEWED FROM SHAFT END.

WAVE FORMS TAKEN WITH CONTROLS SET TO PRODUCE 30 VOLTS PEAK-TO-PEAK SIGNAL AT PICTURE TUBE

1. DC voltage measurements taken with vacuum tube voltmeter. AC voltage measured at 1,000 ohms per volt.
2. Pin numbers are counted in a clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line voltage maintained at 117 volts for voltage readings.
5. All controls set for normal operation, no signal applied.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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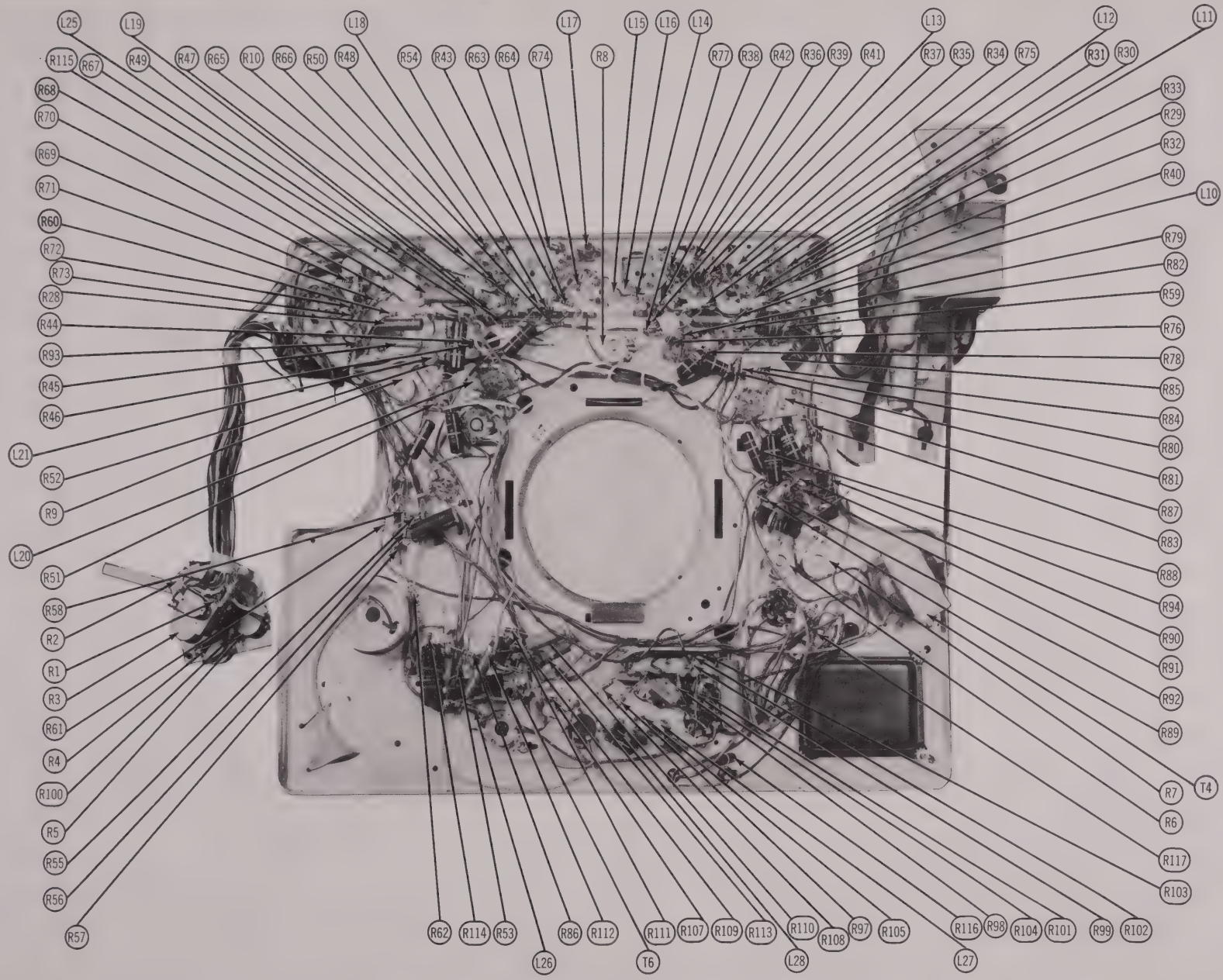
AIRLINE MODELS WG-5130A, WG-5032A, B, C, WG-5035A, B, C, WG-5130A, WG-5132A, B, WG-5135A, B

AIRLINE MODELS WG-5130A, WG-5032A, B, C, WG-5035A, B, C, WG-5130A, WG-5132A, B, WG-5135A, B



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

TUBE FAILURE CHECK CHART

TUBE FAILURE CHECK CHART

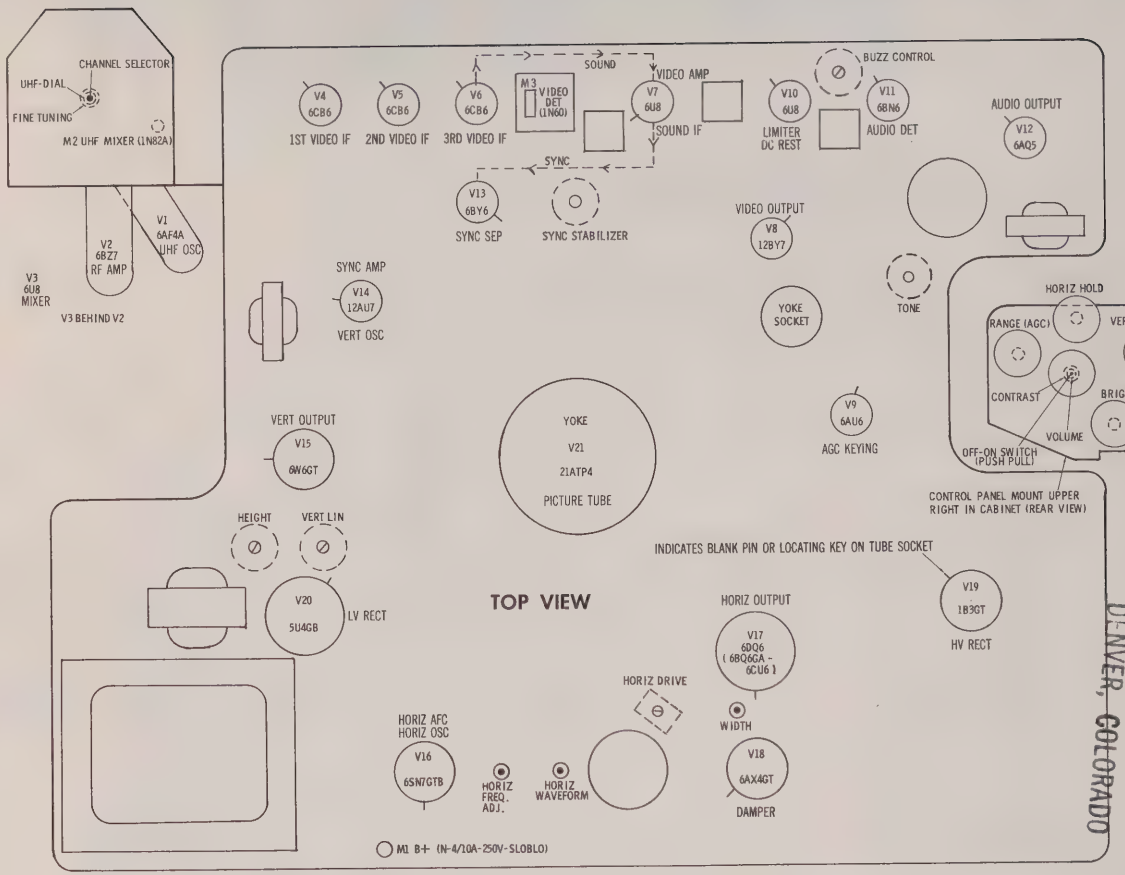
The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound - Fuse (M1), V20

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - V4, V5, V6, Diode (M3), V9
No pic, no sound, has snow - V1 (UHF), V2, V3, V4
No pic, has sound, has raster - V7, V8, V10, V21
Has pic, no sound - V7, V10, V11, V12
Overloaded picture - V9

SYNC FAILURE
No vert. sync - V13, V14
No horiz. sync - V13, V14, V16
No vert. or horiz. sync - V13, V14

SWEEP FAILURE
No raster, has sound - V16, V17, V18, V19, V21
No vertical deflection - V14, V15
Poor vert. linearity or foldover - V14, V15
Poor horiz. linearity or foldover - V16, V17, V18
Narrow picture - V16, V17, V18, V20
Vert. off freq. - V13, V14
Horiz. off freq. - V13, V14, V16



TUBE PLACEMENT CHART

AIRLINE MODELS WG-5130A, WG-5032A, B, C, WG-5035A, B, C, WG-5130A, WG-5132A, B, WG-5135A, B

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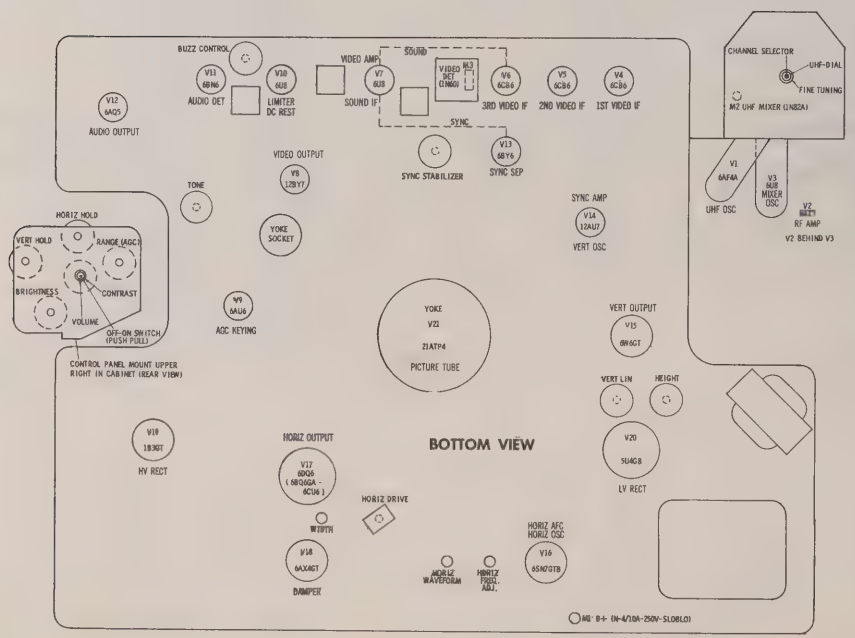
RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6AF4	† *6000Ω	10K	.1Ω	0Ω	.1Ω	10K	† *6000Ω		
V2	6BZ7	† 3000Ω	290K	INF	0Ω	.1Ω	INF	570K	0Ω	† 3000Ω
V3	6U8	† 5000Ω	200K	† 100K	.1Ω	0Ω	† 9700Ω	0Ω	0Ω	10K
V4	6CB6	27K	47Ω	0Ω	.1Ω	† 3200Ω	† 3200Ω	0Ω		
V5	6CB6	22K	47Ω	0Ω	.1Ω	† 3200Ω	† 3200Ω	0Ω		
V6	6CB6	.1Ω	180Ω	0Ω	.1Ω	† 2700Ω	† 2700Ω	0Ω		
V7	6U8	† 8800Ω	2Ω	† 35K	0Ω	.1Ω	† 35K	560Ω	1.5Ω	3900Ω
V8	12BY7	● 85Ω	1Meg	0Ω	0Ω	0Ω	.1Ω	† 3600Ω	† 1700Ω	0Ω
V9	6AU6	† 35K	† 1700Ω	0Ω	.1Ω	140K	† 40Ω	† 1700Ω		
V10	6U8	0Ω	100K	† 150K	.1Ω	0Ω	† 82K	0Ω	1Meg	0Ω
V11	6BN6	● 2Ω	3.2Ω	.1Ω	0Ω	† 6500Ω	6Ω	† 330K		
V12	6AQ5	1Meg	270Ω	.1Ω	0Ω	† 1000Ω	† 510Ω	1Meg		
V13	6BY6	30K	0Ω	0Ω	.1Ω	† 820K	† 29K	2.2Meg		
V14	12AU7	● ‡ 1.3Meg	● 1.8Meg	220Ω	.1Ω	.1Ω	† 13K	47K	0Ω	0Ω
V15	6W6GT	TP	0Ω	† 450Ω	† 450Ω	2.2Meg	TP	.1Ω	● 1400Ω	
V16	6SN7GTB	410K	† 56K	0Ω	1.5Meg	● † 400Ω	410K	.1Ω	0Ω	
V17	6DQ6	TP	0Ω	NC	† 6800Ω	470K	TP	.1Ω	100Ω	TOP CAP ‡ 10Ω
V18	6AX4GT	NC	NC	650K	NC	† 40Ω	NC	.1Ω	0Ω	
V19	1B3GT		PINS	1 THRU 8	HAVE	INFINITE	RESISTANCE			TOP CAP ‡ 335Ω
V20	5U4GB	NC	90K	NC	22Ω	NC	20Ω	NC	90K	
V21	21ATP4	0Ω	1.1Meg	Pin 6 † 100K	Pin 10 ‡ 470K	Pin 11 ● 360K	Pin 12 .1Ω			

● THIS READING WILL VARY, CONTROL SET FOR NORMAL OPERATION.
‡ MEASURED FROM PIN 3 OF V18.
† MEASURED FROM PIN 8 OF V20.
* MEASURED IN "UHF" POSITION.
TP TIE POINT
NC NO CONNECTION



TUBE PLACEMENT CHART

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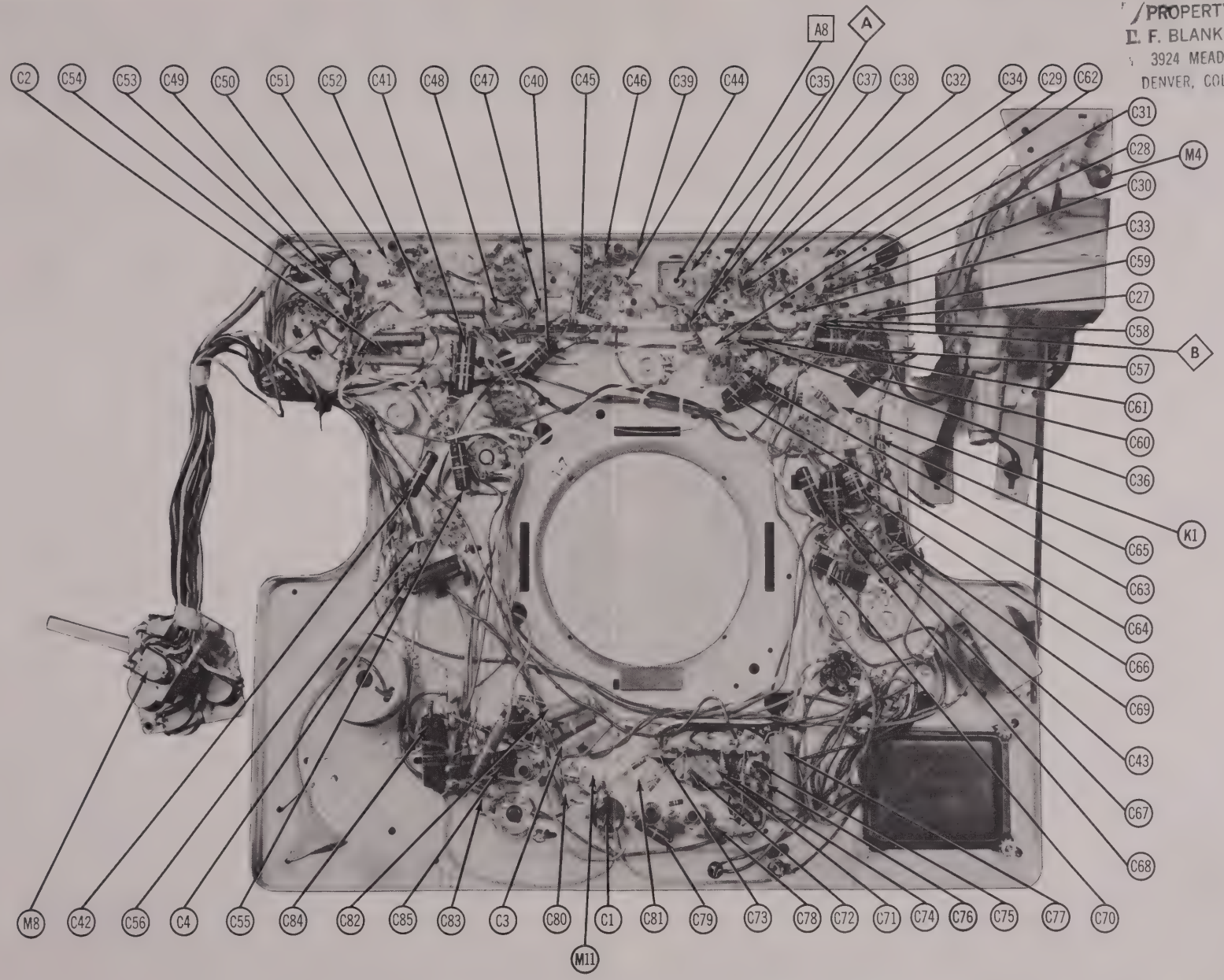

CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION

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CHASSIS TOP VIEW

AIRLINE MODELS WG-5130A, WG-5032A, B, C, WG-5035A, B, C, WG-5130A, WG-5132A, B, WG-5135A, B

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	UHF Osc.	6AF4	
V2	RF Amp.	6BZ7	
V3	Mixer-Osc.	6U8	
V4	1st Video IF Amplifier	6CB6	
V5	2nd Video IF Amplifier	6CB6	
V6	3rd Video IF Amplifier	6CB6	
V7	Video Amp. -Sound IF Amp.	6U8	Note 1
V8	Video Output	1BF7	
V9	AGC Keying	6AU6	
V10	Lumiter-DC Restorer	6U8	

ITEM No.	USE	TYPE	NOTES
V11	Audio Det.	6BN6	
V12	Audio Output	6AQ6	
V13	Sync Sep.	6BY6	
V14	Sync Amp. -Vert. Osc.	12AU7	
V15	Vert. Output	5W6GT	
V16	Horiz. AFC-Horiz. Osc.	8SN7GTB	
V17	Horiz. Output	6DQ6	
V18	Damper	6AX4GT	
V19	HV Rectifier	1B3GT	
V20	LV Rectifier	5U4GB	

Note 1: Some versions may use 6CU6 or 6BQ6GA in this application.

PICTURE TUBE

ITEM No	REPLACEMENT DATA				NOTES
	AIRLINE PART No	CBS PART No	GENERAL ELECTRIC PART No.	SYLVANIA PART No.	
V21	21ATP4	21ATP4 ①	21ATP4A/B1ATP4 ①	21ATP4A/ 21ATP4 ② 21ATP4A ② 21BTP4	① Aluminized ② Silver-Screen "85"

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA AIRLINE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	80	300	45X428	AFH4-07	DO050	FP-235	TMT-25	Q-010	R2203*
B	20	300			BBR20-50	TC-36	TD-10-50	MT-0510	
C	20	50							
C2A	80	300	45X429	AFH3-29-50	B0354	FP227.5		T-180	R2204*
B	60	300			BR4015	TC68		MT-0550	
C	40	50							
C3	4	50	45X418	PRS150V4	BBR-4-50	TC30	TD-4-50	MMT-0505	TVA-1303
C4	4	50	45X418	PRS150V4	BBR-5-40	TC30	TD-4-50	MMT-0505	TVA-1303

* Non catalog item.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP	RATING VOLT	REPLACEMENT DATA AIRLINE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C5	30		33M20GP300KN02							
C6	1500		13LEXA152Z	BPD-0015	DD-152	BYA10D15	ED-0015	DC5215	5HK-D15	
C7	3									
C8	200									
C9	1000		33M320EA102Z-01	EF-001	MFT-1000				503C-D1	
C10	1000		33M320EA102Z-01	EF-001	MFT-1000				503C-D1	
C11	3		13L8C330H	NP0-S13	TCZ-3R3	C10V3C	TCO-3	ZT-553		
C12	3-12		31B901							
C13	1500		13LEXA152Z	BPD-0015		BYA10D15	ED-0015	DC5215	5HK-D15	
C14	1000		13M28SN102Z	EF-001	MFT-1000				503C-D1	
C15	.5-3		31B902		829-3		3115-D	CT565A		
C16	47		13L8Q470K							
C17	47		33M20L470K-R							
C18	.5-3		31B902		829-3		3115-D	CT565A		
C19	1500		13LEXA152Z	BPD-0015	DD-152	BYA10D15	ED-0015	DC5215	5HK-D15	
C20	5		13L8TA050C							
C21	10		13L8U100F							
C22	1500		13LEXA152Z	BPD-0015	DD-152	BYA10D15	ED-0015	DC5215	5HK-D15	
C23	1000		13M28SN102Z	EF-001	MFT-1000				503C-D1	
C24	1000		13M28SN102Z	EF-001	MFT-1000				503C-D1	
C25	1000		13M28SN102Z	EF-001	MFT-1000				503C-D1	
C26	1500		13LEXA152Z	BPD-0015	DD-152	BYA10D15	ED-0015	DC5215	5HK-D15	
C27	47			DI-47	D6-470	LT6Q47	GP-47	UC-5447	5GA-Q47	
C28	47			DI-47	D6-470	LT6Q47	GP-47	UC-5447	5GA-Q47	
C29	680			BPD-00068	DD-681	BYA10T68	ED-680	UC-5368	5GA-T68	
C30	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C31	56			NP0-S156	TCZ-56	C10Q56C	TCO-56			
C32	680			BPD-00068	DD-681	BYA10T68	ED-680	UC-5368	5GA-T68	
C33	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C34	68			NP0-S168	TCZ-68	C10Q68C	TCO-68			
C35	680		80X15	BPD-00068	DD-681	BYA10T68	ED-680	UC-5368	5GA-T68	
C36	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C37	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C38	470		80X4	BPD-00047	DD-471	BYA10T47	ED-470	UC-5347	5GA-T47	
C39	100			DI-100	D6-101	LT6T1	GP-100	UC-531	5GA-T1	
C40	.047	400	RCP10M4473M	BPD-05	DF-503	CUB4S47		GEM-4147	4TM-S47	
C41	.1	400		P488N-1	DF-104	CUB4P1		GEM-401	4TM-P1	
C42	.015	600	RCP10M6153M	BPD-015	DD-103	CUB6S15	ED-015	GEM-6115	6TM-S15	
C43	.047	600	RCP10M6473M	BPD-05	DF-503	CUB6S47		GEM-6147	6TM-S47	
C44	1.5			NP0-S1 5	C10V15C	TCO-1 5	ZT-5515		5TCCB-V15	
C45	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C46	5000			BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C47	100			DI-100	D6-101	LT6T1	GP-100	UC-531	5GA-T1	
C48A	1000		80X3	BPD-2X001	DD2-102	BYC6DD1	ED-1000	DCD521	5HK-2D1	
B	1000						ED-1000			
C49	5000			BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C50	470		80X4	BPD-00047	DD-471	BYA10T47	ED-470	UC-5347	5GA-T47	
C51	15			BPD-00015	DD-150	L10Q1	ED-15	UC-5415	5GA-Q15	
C52A	1000		80X3	BPD-2X001	DD2-102	BYC6DD1	ED-1000	DCD521	5HK-2D1	
B	1000						ED-1000			
C53	.0047	400	RCP10M4472M	BPD-0047	DD-472	CUB4D47	ED-0047	GEM-4247	4TM-D47	
C54	.022	600	RCP15M6223M	BPD-02	DF-203	CUB6S22	ED-02	GEM-6122	6TM-S22	
C55	.47	200	RCP10M2474M	P288N-47		CUB2P47		GEM-2047	2TM-P47	Note 1
C56	1000	1000	47K753	BVD-15-1000		CUA1DD1M		DC3021	10HKB-D1	
C57	.47	200	RCP10M2474M	P288N-47		CUB2P47		GEM-2047	2TM-P47	
C58	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C59	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C60	.47	200	RCP10M2474M	P288N-47		CUB2P47		GEM-2047	2TM-P47	
C61	330		47X570	1469-00033		5R5T33			MS-333	
C62	5000			BPD-005	DD-502	BYA10D5	ED-005	DC525	5HK-D5	
C63	.047	400	RCP10M4473M	BPD-05	DF-503	CUB4S47		GEM-4147	4TM-S47	
C64	.047	400	RCP10M4473M	BPD-05	DF-503	CUB4S47		GEM-4147	4TM-S47	
C65	01	400		BPD-01	DD-103	CUB4S1	ED-01	GEM-411	4TM-S1	
C66	.047	400	RCP10M4473M	BPD-05	DF-503	CUB4S47		GEM-4147	4TM-S47	
C67	.1	400		P488N-1	DF-104	CUB4P1		GEM-401	4TM-P1	
C68	.022	200	RCP10M2223M	BPD-02	DF-203	CUB2S22	ED-02	GEM-2122	2TM-S22	
C69	.047	200	RCP10M2473M	BPD-05	DF-503	CUB2S47		GEM-2147	2TM-S47	

CAPACITORS (cont)

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA AIRLINE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C70	.047	600	RCP10M6473M	BPD-05	DF-503	CUB6S47		GEM-6147	6TM-S47	
C71	18		RCM20B180K	1469-00018		22RSQ18			MS-418	
C72	82		RCM20B820K	1469-00082		22RSQ82			MS-482	
C73	100			1469-0001		22RS71		MC235	MS-31	
C74	.047	400	RCP10M4473M	BPD-05	DF-503	CUB4S47		GEM-4147	4TM-S47	
C75	.047	200	RCP10M2473M	BPD-05	DF-503	CUB2S47		GEM-2147	2TM-S47	
C76	.033	200	RCP10M2333M	BPD-03	DF-303	CUB2S33	ED-02	GEM-2122	2TM-S22	
C77	.47	200	RCP10M2474M	P288N-47		CUB2P47		GEM-2047	2TM-P47	
C78	220			1469-00022		22R5T22			MS-322	
C79	.01	400		BPD-01		CUB4S1		GEM-411	4TM-S1	
C80	680			BPD-00068	DD-681	BYA10T68	ED-680	UC-5368	5GA-T68	
C81	820		RCM20B821K	1464-00082		1R5T82			MS-382	
C82	.047	400	RCP10M4473M	BPD-05	DF-503	CUB4S47		GEM-4147	4TM-S47	
C83	39	5000	47X756			HVA20Q39				
C84	.1	600		P488N-1	DF-104	CUB6P1		GEM-601	6TM-P1	
C85	15	200	RCP10M2154M	P288N-15		CUB2P15		GEM-2015	2TM-P15	
C86	.1	200		P288N-1	DF-104	CUB2P1		GEM-201	2TM-P1	
C87	.22	400		P488N-22		CUB4P22		GEM-4022	4TM-P22	Note 1

Note 1: Not used in some versions.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA AIRLINE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1000Ω	½	78X27					Contrast
B	1Meg	½						Volume - Tap③ 250K
R2A	500K	½	40X416	AB-59	A47-500K-S	QU-133	U50	Brightness
B	Shaft			AK-8	RS-3/16	NQ	DS-37	
R3A	1.5Meg	½	40X415	AB-742	A47-1.5Meg-S	QU-138	U155	Vert. Hold
B	Shaft			AK-8	RS-3/16	NQ	DS-37	
R4A	50K	½	40X414	AB-31	A47-50K-S	QU-123	U35	Horiz. Hold
B	Shaft			AK-8	RS-3/16	NQ	DS-37	
R5A	1.5Meg	½	40X415	AB-742	A47-1.5Meg-S	QU-138	U155	Range
B	Shaft			AK-8	RS-3/16	NQ	DS-37	
R6A	1500Ω	½	40X410	AB-6	A47-1500-S	QU-109	PTA152L	Vert. Lin.
B	Shaft			AK-4	FKS-1/2	NQ	Not Req.	
R7A	2.5Meg	½	40X405	AB-83	A47-2.5Meg-S	QU-239	TA255L	Height
B	Shaft			AK-4	FKS-1/2	NQ	Not Req.	
R8A	2.5Meg	½	40X405	AB-83	A47-2.5Meg-S	QU-239	TA255L	Sync Stab.
B	Shaft			AK-4	FKS-1/4	NQ	Not Req.	
R9A	100K	½	40X407	AB-60	A47-100K-S	QU-128	TA15L	Tone
B	Shaft			AK-4	FKS-1/4		Not Req.	
R10	500Ω	2	40X397		B9-500		FL-600	Buzz (Wire-wound)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA AIRLINE PART No.	IRC PART No.	NOTES
R11	100Ω		12TAE100K	BTS-100	
R12	10K		12TA6103K	BTS-10K	
R13	1000Ω		31S-563	BTS-1000	
R14	47K		12TAE473M	BTS-47K	
R15	22K		12TAE223K	BTS-22K	
R16	820K		12TAE824K	BTS-820K	
R17	470K		12TAE474K	BTS-470K	
R18	1500Ω	1	12SAE152K	BTA-1500	
R19	6800Ω		12TAE682K	BTS-6800	
R20	100K		12TAE104K	BTS-100K	
R21	100K		12TA6104K	BTS-100K	
R22	100K		12TAE104K	BTS-100K	
R23	10K		12TAE103M	BTS-10K	
R24	27K		12TAE273K	BTS-27K	
R25	3300Ω	1	12SAE332K	BTA-3300	
R26	100K		12TAE104K	BTS-100K	
R27	8200Ω			BTS-8200	
R28	1500Ω	2		BTB-1500	
R29	4700Ω				
R30	1000Ω		31S-563	BTS-1000	
R31	470 1 5%			BTS-47 5%	
R32	1000Ω				
R33	68K				
R34	1000Ω		31S-563	BTS-1000	
R35	71 5%			BTS-47 5%	
R36	22K			BTS-22K	
R37	47K				
R38	1000Ω			BTS-1000	
R39	180Ω			BTS-180	
R40	470Ω			BTS-470	
R41	47K				
R42	3900Ω 5%				
R43	5600Ω	1		BTA-5600	
R44	1Meg				
R45	3800Ω 5%	4	43X331		
R46	68Ω			BTS-68	
R47	100K			BTS-100K	
R48	1Meg			BTS-1Meg	
R49	680Ω			BTS-680	
R50	820Ω			BTS-820	
R51	22K			BTS-22K	
R52	100K			BTS-100K	
R53	1.8Meg			BTS-1.8Meg	
R54	33K			BTS-33K	
R55	47K			BTS-47K	
R56	68K			BTS-68K	
R57	22K			BTS-22K	
R58	100K			BTS-100K	
R59	390K			BTS-390K	
R60	820K			BTS-820K	
R61	47K			BTS-47K	
R62	47K			BTS-47K	
R63	33K			BTS-33K	
R64	560Ω			BTS-560	

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA AIRLINE PART No.	IRC PART No.	NOTES
R65	100K			BTS-100K	
R66	68K			BTS-68K	
R67	82K			BTS-82K	
R68	680Ω			BTS-680	
R69	330K			BTS-330K	
R70	4700Ω			BTS-4700	
R71	120K			BTS-120K	
R72	470Ω	1		BTA-270	
R73	270Ω	1		BTA-270	
R74	10K			BTS-10K	
R75	150K			BTS-150K	
R76	2.2Meg			BTS-2. 2Meg	
R77	270K			BTS-270K	
R78	820K			BTS-820K	
R79	27K	1		BTA-27K	
R80	47K			BTS-47K	
R81	4700Ω			BTS-4700	
R82	6800Ω			BTS-6800	
R83	1.2Meg			BTS-1.2Meg	
R84	180K			BTS-180K	
R85	2.2Meg			BTS-2.2Meg	
R86	470K			BTS-470K	
R87	470K			BTS-470K	
R88	22K			BTS-22K	
R89	2.2Meg			BTS-2.2Meg	
R90	12K 5%			BTS-12K 5%	
R91	100Ω			BTS-100	
R92	680Ω	1		BTA-680	
R93	100K			BTS-100K	
R94	2200Ω			BTS-2200	
R95	560Ω				
R96	560Ω				
R97	230K				
R98	330K				
R99	820K				
R100	120K				
R101	82K				
R102	330K				
R103	3900Ω				
R104	82K				
R105	22K				
R106	10K				
R107	1Meg				
R108	56K				
R109	68Ω			BTS-68	
R110	470K			BTS-470K	
R111	68Ω			BTS-68	
R112	6800Ω	2		BTB-6800	
R113	100Ω	2		BTB-100	
R114	4700Ω			BTS-4700	
R115	1700Ω	10	43X294	1 3/4A-1750	
R116	100K	2		BTB-100K	
R117	270K			BTS-270K	

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	RATING SEC. 3	REPLACEMENT DATA AIRLINE PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117VAC	525VCT	5V	6.3V	53X354-A		P-8830①	P-8332 ③	26R88①④	R-61BC①
	①1.74A	②.270A	③ 3A	④9.6A			②			④

① Parallel & phase 6.3V, 6A filament windings.
② Tape 6.3V, 1.25A filament winding.
③ Parallel & phase 6.3V filament windings.
④ Tape 6.3V, 1.2A filament winding.

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA AIRLINE PART No.	Halldorson PART No.	Merit PART No.	RCA TYPE No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T2	Vert. Osc. Trans.	54X10	B6702	A-3003	209T1 ①	V405	A-8125	26A03	A-97X
T3	Horiz. Output Trans.	53X355	FB419 & RF800*①②	HVO-38 & MWC-11*②	235T1 & 212R1*①	X094 & 201R16*①②	A-8253 * ① ②	FLY-16 & WC-18*②①	D-50 & WC-12*②①
T4	Vert. Output Trans.	51X173A	Z1900③④	A-2823①④		V302①④	A-8148⑤	26S72①④	A-108X①④
		51X173 ②	Z1900③④	A-2823①④		V303①④	A-8148⑤	26S72①④	A-108X①④
T5A	Yoke(90°)Horiz(20MH)	9A2388-1B⑥	DF607⑦③	MDF-92⑦	235D1⑦⑧	Y90F19/43	DY-16A⑦	Y-16⑦③	Y-41-1⑦
B	Vert(39MH)	9A2388 ②		⑦⑧		⑦⑧	⑧		⑧
T6	Width Coil (1-9MH)	9A2381	RF802 ⑩	MWC-6	211R1	201R16	WC-8	WC-22	WC-12 ⑪

① Drill new mounting hole(s).
② Alternate Airline part no.
③ Use 8 to 1 turns.
④ Connect as auto transformer.
⑤ Cut and tape green lead.
⑥ Includes resistor R95 and R96.
⑦ Use original rear cover and centering device.
⑧ Use original horiz. yoke damping network.
⑨ Yoke rear cover and centering device.
⑩ Do not use tap.
⑪ Connect to coded red and blue terms.
* This part may be superceded by Parts Manufacturer's introduction of special unit for this application.

*HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

Use Original Width Coil Unless Replacement Type Is Listed

	ORIGINAL TERMINAL CONNECTIONS	Halldorson Replacement Connections	Merit Replacement Connections	RCA Replacement Connections	Ram Replacement Connections	Stancor Replacement Connections	Thordarson Replacement Connections	Triad Replacement Connections
	8	9	9	9	9	8	9	9
	4	7	7	7	7	1	7	7
	3	7	7	7	7	1	7	7
	2	4 Note ⑫	4 Note ⑫	4 Note ⑫	4 Note ⑫	3 Note ⑫	4 Note ⑫	4 Note ⑫
	1	3	3	3	3	3	3	3
	5	1	1	1	1	4	1	1
Connect Width Coil Across	1 & 5	Terms #1 & #2 of RF800 Across 3 & 1	MWC-11 Across 3 & 1	212R1 Across 3 & 1	201R16 Across 3 & 1	6 & 7	WC-18 Across 3 & 1	Red & Blue Terms of WC-12 Across 3 & 1
Special Notes →		⑫ ⑬	⑬ ⑭	⑫ ⑬	⑫ ⑬	⑫⑬⑭	⑫ ⑬	⑫ ⑬

⑫ Connect approx. 100-150MMF ③ 2KV in series with resistor R116 & connect across horiz. yoke terms #3 & #7.
⑬ Change values of resistor R61 & R62 as necessary to obtain required peak to peak pulse voltage at plate of V9, AGC keyer tube.
⑭ Ground either term #6 or term #7.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA AIRLINE PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T7	6300Ω	6-8Ω	51X181	Z1000 ①	A-2900 ①	A-3856①	24S80 ①	S-51X ①	① Tape center tap on primary winding.

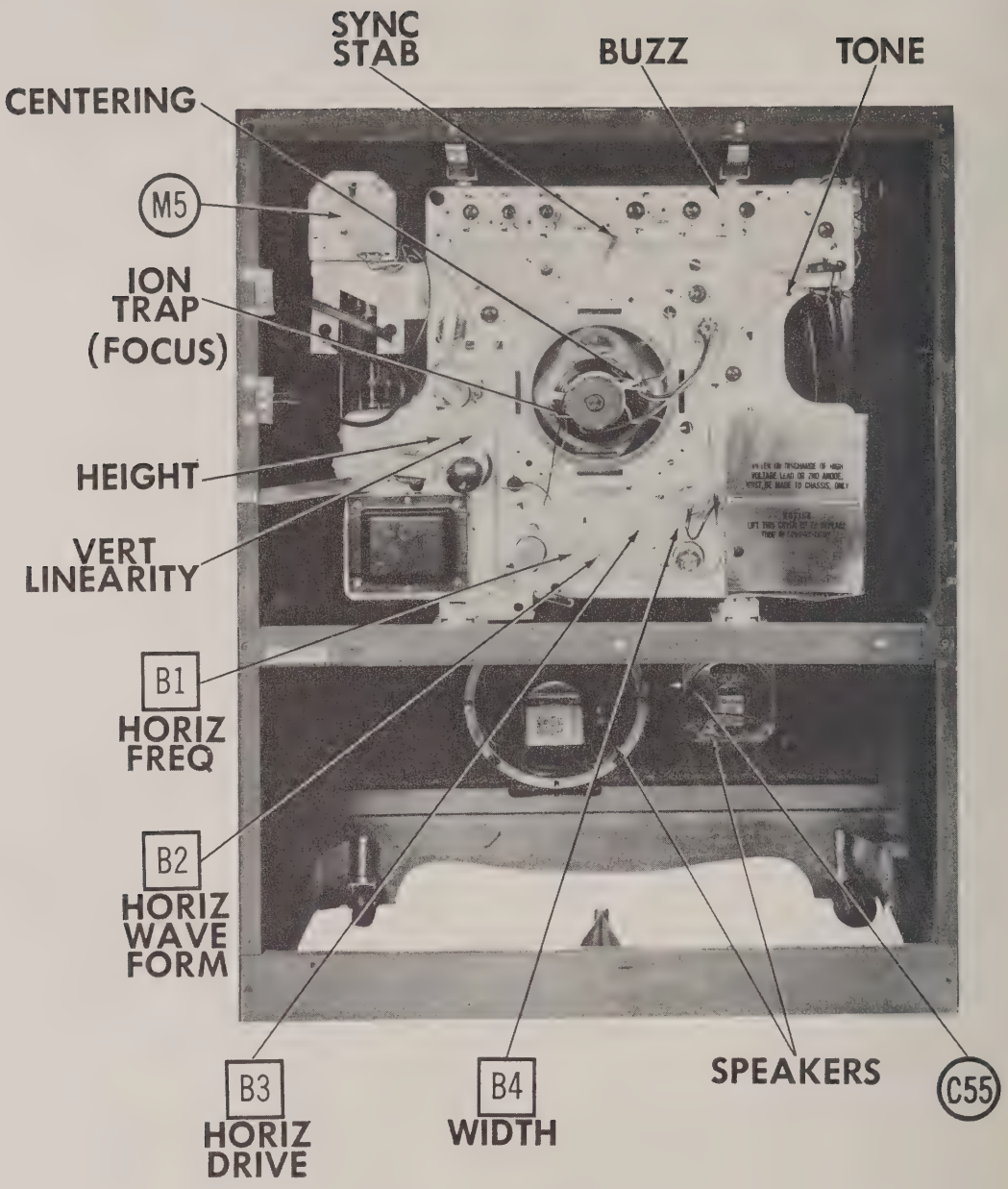
SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA AIRLINE PART No.	QUAM PART No.	NOTES
SP1	8"	PM	6-8Ω	12A539	8A426 ①	① Connect in parallel & phase.
SP2	4"	PM	6-8Ω	12A537	4A07Z6 ①	

COILS (RF-IF)

ITEM No.	USE	AIRLINE PART No.	NOTES
L1	UHF RF Coupling Coil	31S-092*	
L2	Fil. Choke	31K-137-019*	
L3	Cath. Choke	31K-137-019*	
L4	RF Choke	31K-137-015*	
L5	RF Choke	31K-137-014*	
L6A	Ant. Coils	31M-013.1U*	Channel 1 - includes complete 41MC coil board assembly.
B	Ant. Coils	31M-013.2U*	Channel 2
C	Ant. Coils	31M-013.3U*	Channel 3
D	Ant. Coils	31M-013.4U*	Channel 4
E	Ant. Coils	31M-013.5U*	Channel 5
F	Ant. Coils	31M-013.6U*	Channel 6
G	Ant. Coils	31M-013.7U*	Channel 7
H	Ant. Coils	31M-013.8U*	Channel 8
I	Ant. Coils	31M-013.9U*	Channel 9
J	Ant. Coils	31M-013.10U*	Channel 10
K	Ant. Coils	31M-013.11U*	Channel 11
L	Ant. Coils	31M-013.12U*	Channel 12
M	Ant. Coils	31M-013.13U*	Channel 13
L7	Cath. Choke	31B-727	

ITEM No.	USE	AIRLINE PART No.	NOTES
L8B	RF, Mixer Grid & Osc. Coils	31M-113.2U*	Channel 2
C	RF, Mixer Grid & Osc. Coils	31M-113.3U*	Channel 3
D	RF, Mixer Grid & Osc. Coils	31M-113.4U*	Channel 4
E	RF, Mixer Grid & Osc. Coils	31M-113.5U*	Channel 5
F	RF, Mixer Grid & Osc. Coils	31M-113.6U*	Channel 6
G	RF, Mixer Grid & Osc. Coils	31M-113.7U*	Channel 7
H	RF, Mixer Grid & Osc. Coils	31M-113.8U*	Channel 8
I	RF, Mixer Grid & Osc. Coils	31M-113.9U*	Channel 9
J	RF, Mixer Grid & Osc. Coils	31M-113.10U*	Channel 10
K	RF, Mixer Grid & Osc. Coils	31M-113.11U*	Channel 11
L	RF, Mixer Grid & Osc. Coils	31M-113.12U*	Channel 12
M	RF, Mixer Grid & Osc. Coils	31M-113.13U*	Channel 13



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and turn the horizontal hold control fully clockwise. Tune in a TV station and adjust the horizontal frequency slug (B1) until the picture is just about to tear out of sync at the top of the picture.

Connect the vertical amplifier of the scope to point (E). Low side to chassis. With the picture in sync adjust B2 for equal peaks of the waveform as in Fig. 6. Turn the horizontal drive trimmer (B3) clockwise until white vertical lines appear in the left center of the screen and then turn counter clockwise until the white vertical lines disappear.

Adjust the width slug (B4) for a picture slightly wider than necessary to fill the picture mask horizontally.

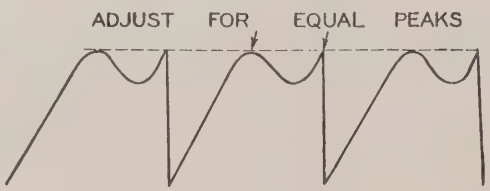
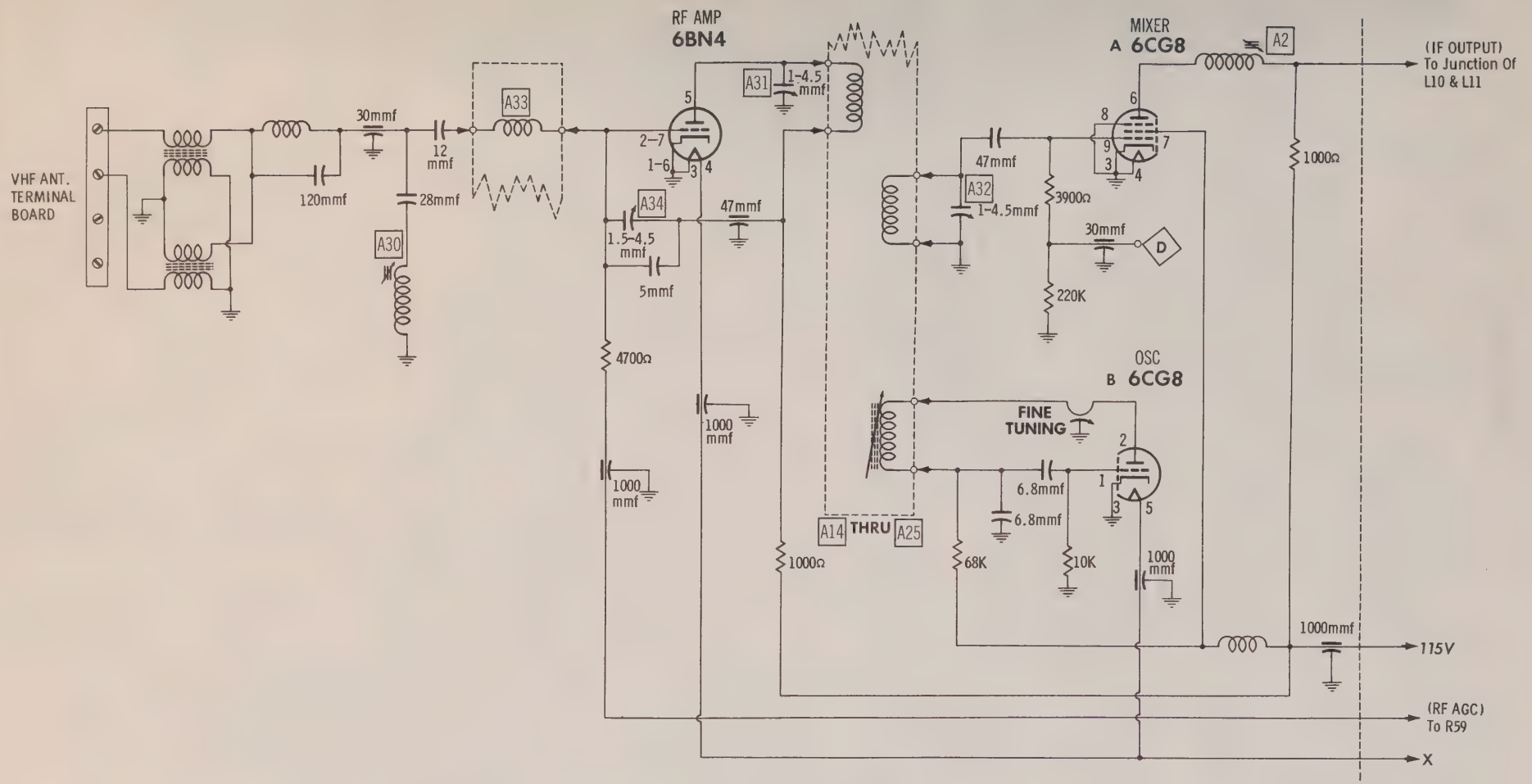


FIG. 6



VHF Tuner Part No. 25A1147.

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ALTERNATE VHF TUNER SCHEMATIC

PARTS LIST AND DESCRIPTIONS (Continued)

COILS (cont)

ITEM No.	USE	AIRLINE PART No.	NOTES
L8A	RF & Osc. Coils	31M-113. 1U*	Channel 1 - Includes complete 41MC coil board assembly.
L9	Converter Plate Coil	31K-264	

* When ordering specify standard coil part number.

ITEM No.	USE	REPLACEMENT DATA				NOTES
		AIRLINE PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L10	39MC Trap	9A2369		TV-152	6225	
L11	1st Video IF	9A2365		TV-131	6225	
L12	2nd Video IF	9A2363			6222	Includes 47. 25MC trap.
L13	3rd Video IF	9A2364			6221	Includes 41. 25MC trap.
L14	Series Peaking Coil	9A2375	19-3036	TV-180	6176	30 Microhenries
L15	Series Peaking Coil	36A35	19-3093■	TV-181■	6177■	82 Microhenries; Wound on 3900Ω resistor.
L16	Shunt Peaking Coil	36A34	19-4400	TV-190	6134	360 Microhenries
L17	4. 5MC Trap	9A2382				
L18	Shunt Peaking Coil	36A36	19-3100	TV-181	6177	100 Microhenries
L19	Shunt Peaking Coil	36A1	19-3100▲	TV-181▲	6177▲	100 Microhenries; Wound on 270Ω resistor.
L20	Series Peaking Coil	36A12	19-4160♦	TV-184♦	6120♦	160 Microhenries; Wound on 22K resistor.
L21	Shunt Peaking Coil	36A37	19-3250▲	TV-185▲	6181▲	235 Microhenries; Wound on 8200Ω resistor.
L22	1st Sound IF	9A2383				Includes 56MMF cap.
L23	2nd Sound IF	9A2368	17-3495	TV-113	6203	Includes 22MMF cap.
L24	3rd Sound IF	9A2368	17-3495	TV-113	6203	Includes 22MMF cap.
L25	Quadrature Coil	9A2367	20-1005		1480	
L26	RF Choke	9A2380	19-1001		4604	1. 5 Microhenries

■ Parallel with 3900Ω resistor.
▲ Parallel with 270Ω resistor.
♦ Parallel with 22K resistor.
▲ Parallel with 8200Ω resistor.

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES.		REPLACEMENT DATA							NOTES
	PRI.	SEC.	AIRLINE PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	RCA TYPE No.	Ram PART No.	Thordarson PART No.	
L27	79Ω		9A2371			6211*				Horiz. Freq. - Tap ⓐ 55Ω Horiz. Waveform
L28	58Ω		9A2372							

* Enlarge mounting hole.

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA					
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ∿)	AIRLINE PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
L29	. 270A	40Ω	. 9HY	52X95-5	C5037 ①	C-2996①	C-2326①	26C44 ①	C-23X ①

① Drill one new mounting hole.

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	AIRLINE PART No.	REPLACEMENT DATA	
K1	Vertical Intergrator	2000MMF, 5000MMF, 5000MMF, 22K, 8200Ω, 8200Ω	76X7	Aerovox Centralab Cornell-Dubilier Erie Sprague	PA-110 PC-100 115TM1 1405-01 V-1

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			AIRLINE PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	N	. 4A 125V	16X162	16X163	333. 400 (N - . 4A)	346009	N 4/10	HN 3/10 to 1/2

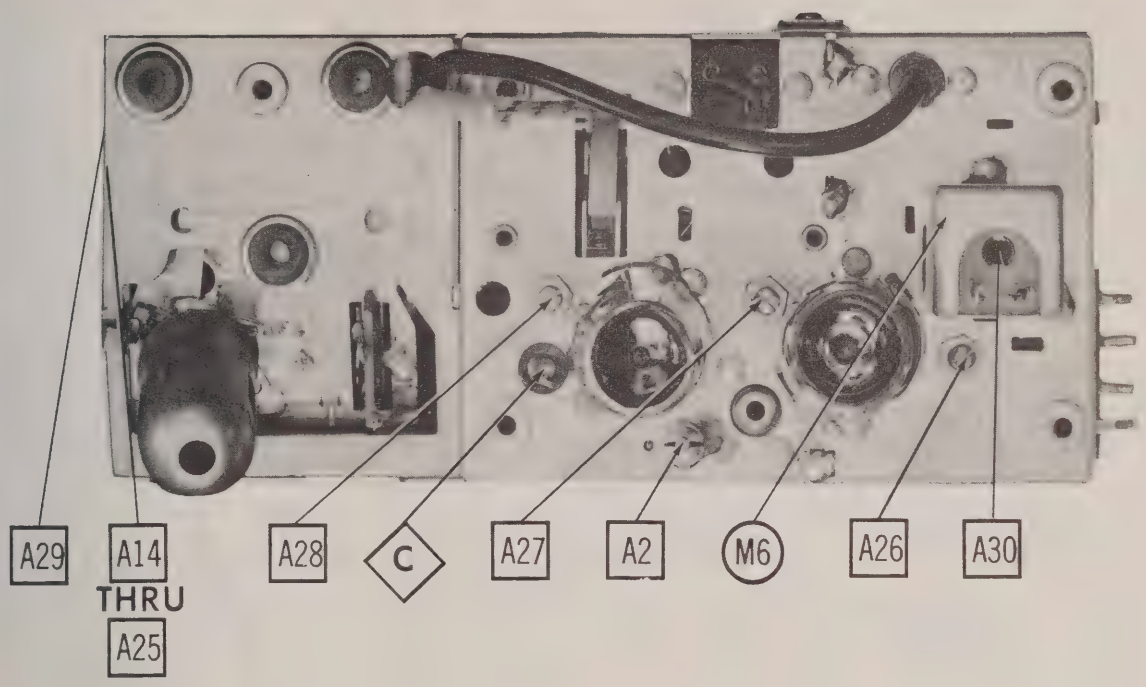
CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA		NOTES
		AIRLINE PART No.	SYLVANIA PART No.	
M2	1N82A	31K-111	1N82A	UHF Mixer (Clip In)
M3	1N60*		1N60	Video Detector (Pigtail)

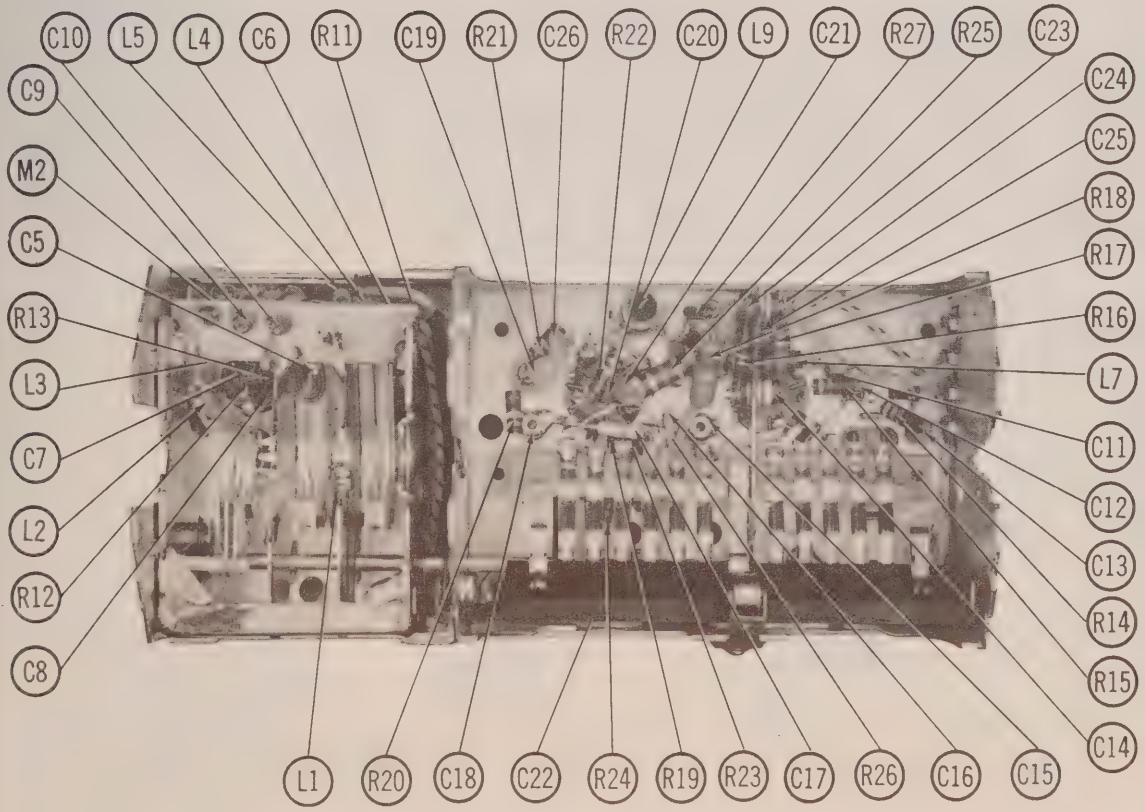
* CK706A may be used in some versions.

MISCELLANEOUS

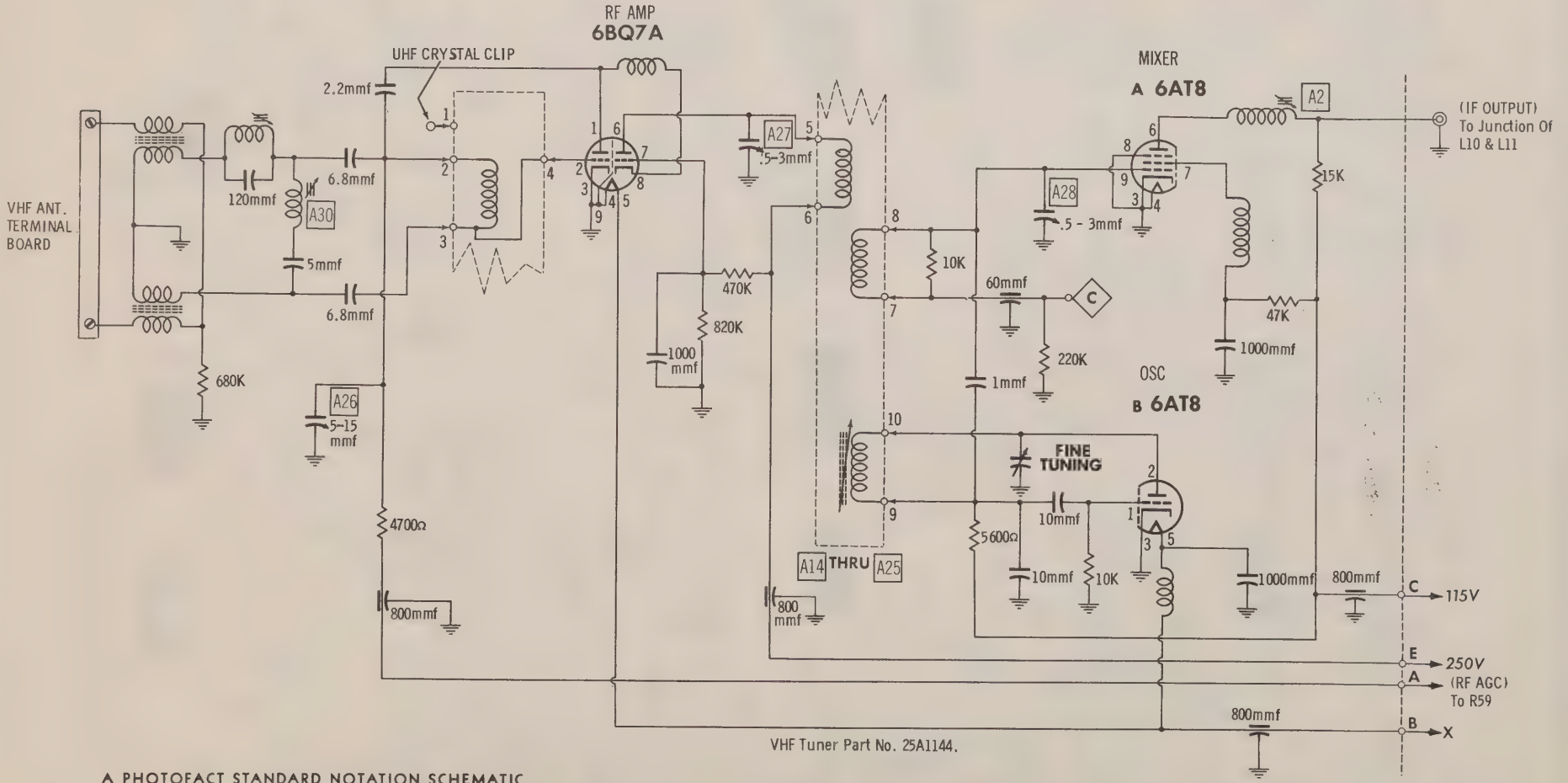
ITEM No.	PART NAME	AIRLINE PART No.	NOTES
M4	Pilot Light		#15, A #51 Pilot Light used in Models WG-5132B, WG-5135B, WG-5032C, WG-5035C.
M5	Tuner	25A1146	UHF/VHF - Used in Models WG-5130A, WG-5132A, B, WG-5135A, B.
	Tuner	25A1144	VHF - Used in Models WG-5030A, WG-5032A, WG-5035A.
	Tuner	25A1147	VHF Only - Used in Models WG-5032B, C, WG-5035B, C.
M6	Ant. Matching Network	31K-225-03	Includes Coils and Caps.
M7	Video Det. Ass'y.	9A2370	Includes 4th Video IF, Series Peaking Coil, M4 and Caps.
M8	Switch	2A464	On-Off, Push Type.
M9	Centering Device	2A435	Includes Yoke Rear Cover.
M10	Ion Trap	2A421	
M11	Trimmer Cap.	17A271	Horiz. Drive (170-700MMF)
	Yoke Clamp	30X611	
	Safety Glass	17X193-1	Tinted, All Models.



RF TUNER-TOP VIEW



RF TUNER-BOTTOM VIEW



VHF Tuner Part No. 25A1144.

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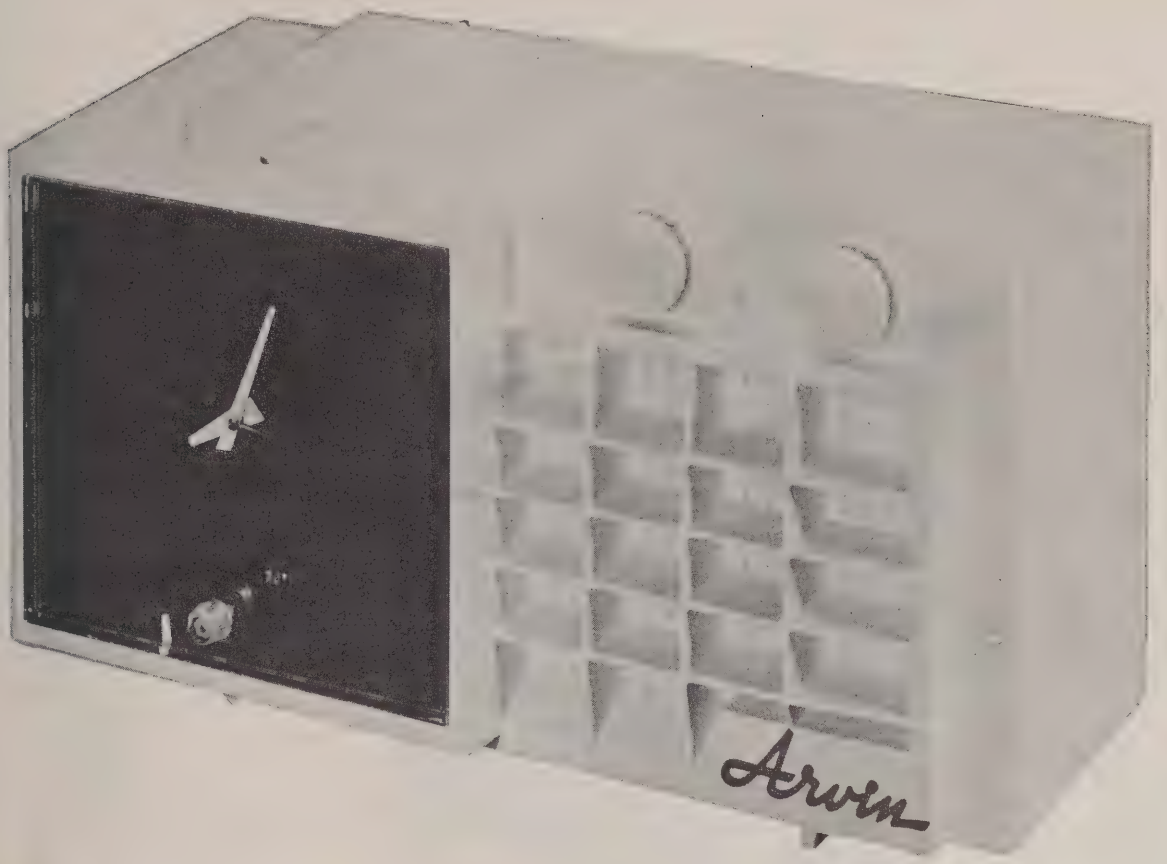
ALTERNATE VHF TUNER SCHEMATIC

ARVIN MODEL
5561 (Ch. 1.40800)



ARVIN MODEL
5561 (Ch. 1.40800)

TRADE NAME	Arvin Model 5561 (Ch. l. 40800)
MANUFACTURER	Arvin Industries, Inc., Columbus, Indiana
TYPE SET	AC Operated AM Receiver With Electric Clock
TUBES (Five)	Types 12BE6 Converter, 12BA6 IF Amplifier, 12AV6 Det-AVC-AF Amp., 50C5 Output, 35W4 Rectifier
POWER SUPPLY	105-120 Volts AC - 60 Cycles RATING . 30 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	540KC - 1670KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and B-.
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
To set pointer, turn tuning capacitor fully closed and set pointer to last reference mark at low frequency end of dial. Loop should be maintained in same relative position to chassis as when receiver is in cabinet.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.		Loop	455KC (400~ Mod)	Tuning gang fully open.	Across voice coil.	A1, A2, A3, A4	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
2.		"	1670KC	"	"	A5	"
3.		"	1400KC	Tune to 1400KC signal.	"	A6	"

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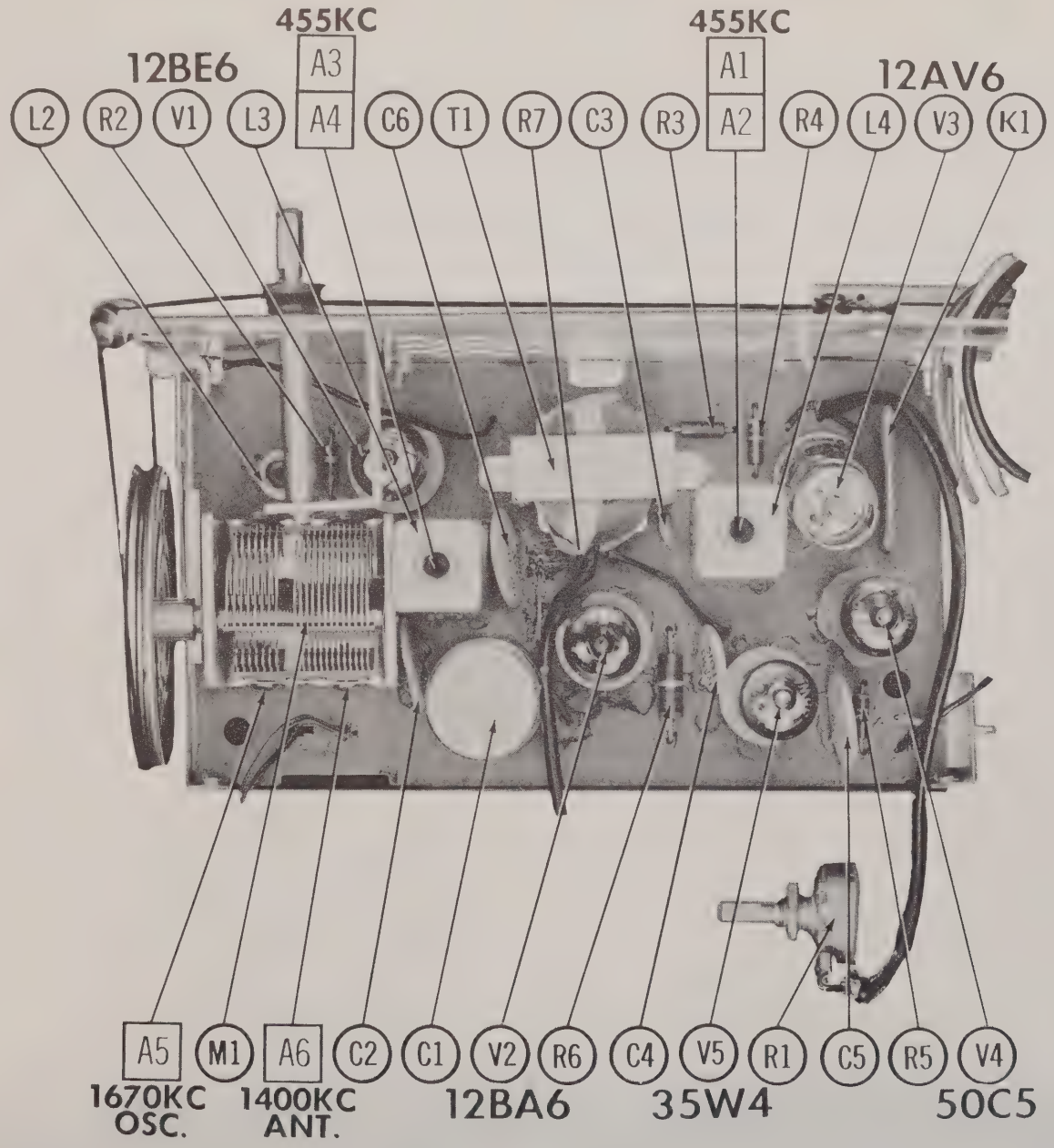


CHASSIS-TOP VIEW

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Converter	12BE6	
V2	IF Amplifier	12BA6	
V3	Det-AVC-AF Amp.	12AV6	
V4	Output	50C5	
V5	Rectifier	35W4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA ARVIN PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	■50	150	43672	AFH2-15	BO150	FP213	TMD-12	D-065	TVL-2432
B	▲30	150							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA ARVIN PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C2	20000			BPD-02	DD-203	K085	ED-02		5HK-S2	
C3	150			DI-00015	DD-151	G046	ED-150	UC-5315	5GA-T15	
C4	10000			BPD-01	DD-103	K082	ED-01	DC511	5HK-S1	
C5	20000			BPD-02	DD-203	K085	ED-02		5HK-S2	
C6	20000			BPD-02	DD-203	K085	ED-02		5HK-S2	

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA ARVIN PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	500K	½	43869	AB-60	A47-500K-Z	Q13-133	U48	Volume
B	Shaft			AK-4	KSS-3	Not Req.	Not Req.	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA ARVIN PART No.	IRC PART No.	NOTES
R2	22K			BTS-22K	
R3	2.2Meg			BTS-2.2Meg	
R4	47K			BTS-47K	
R5	120Ω			BTS-120	
R6	1200Ω	1		BTA-1200	
R7	330K			BTS-330K	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA ARVIN PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	3000Ω	3-4Ω	42700-15	Z1101	A-3025	A-3332	26S58	S-12X	

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA ARVIN PART No.	QUAM PART No.	NOTES
SP1	4"	PM	3-4Ω	22875	4A07	

PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

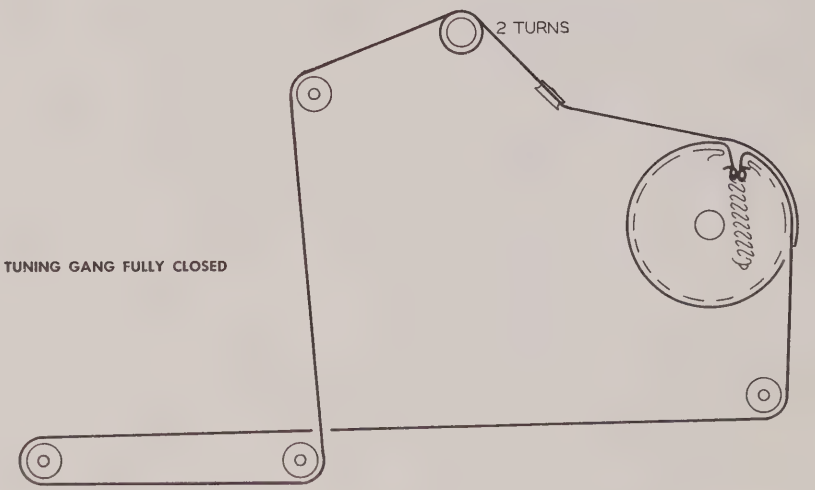
ITEM No.	USE	REPLACEMENT DATA ARVIN PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	NOTES
L1	Loop Ant.	43942-1				Includes Cabinet Back.
L2	Osc. Coil	43644-1				
L3	Input IF	43669-1				
L4	Output IF	43669-1				

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	ARVIN PART No.	REPLACEMENT DATA	
K1	Det. -Audio Net.	6.8Meg, 470K, 470K, 2000MMF, 5000MMF, 220MMF, 250MMF	43743-1	Aerovox	PA-458
				Centralab	PC-158
				Sprague	DT-5

MISCELLANEOUS

ITEM No.	PART NAME	ARVIN PART No.	NOTES
M1	Tuning Cap.	43987	2 Gang
M2	Clock	43882-061	
	Cabinet	43963-13	Pink
	Cabinet	43963-36	Nile Green
	Knob	43796-13	Volume & Tuning (Pink)
	Knob	43796-36	Volume & Tuning (Nile Green)
	Knob	43935	Clock Control
	Knob	43858-13	Clock (Pink)
	Knob	43858-36	Clock (Nile Green)
	Pointer	43973-1	Dial

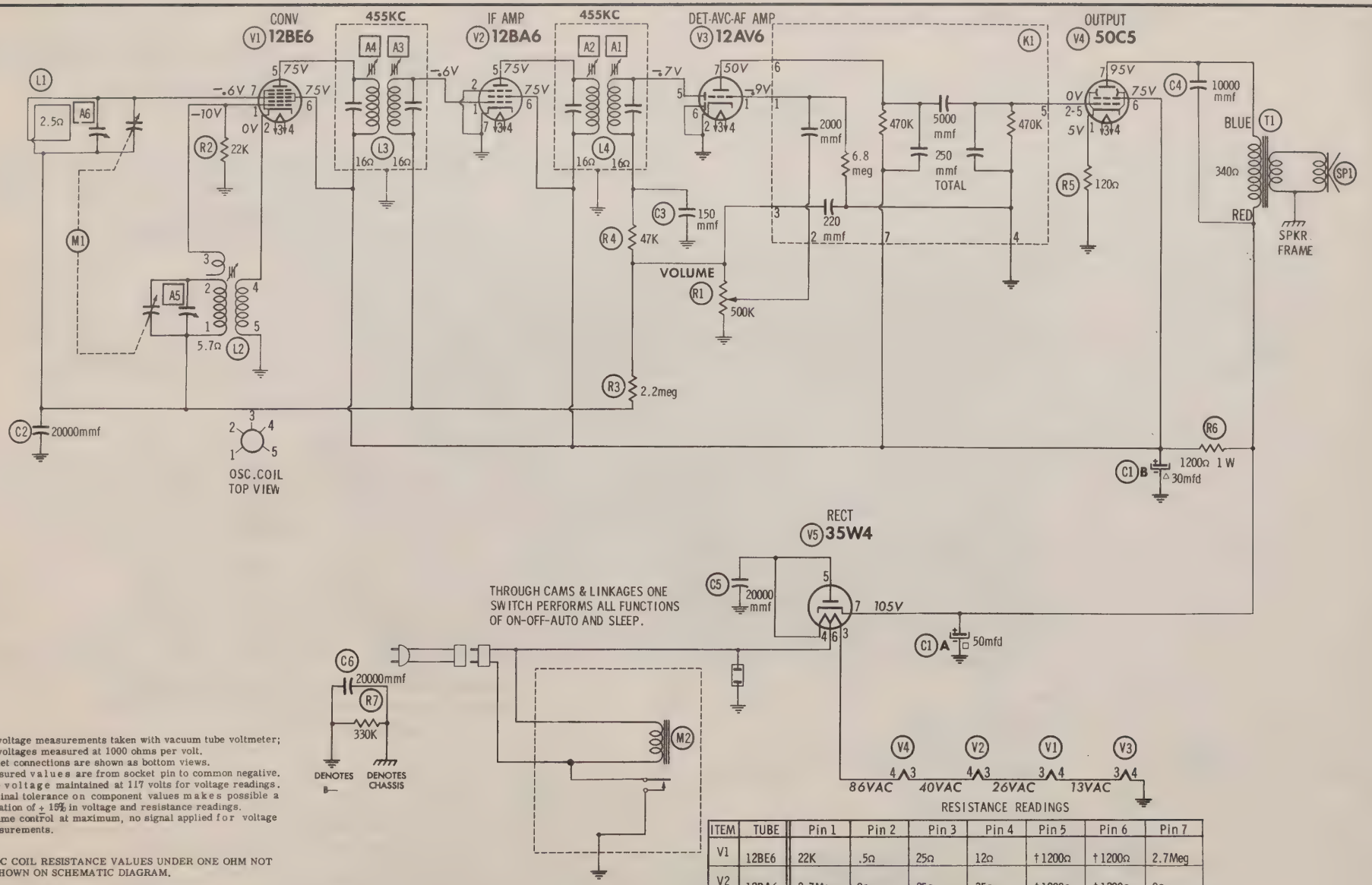


DIAL CORD STRINGING

SET 351 FOLDER 3

ARVIN MODEL 556t (Ch. t. 40800)

ARVIN MODEL 556t (Ch. t. 40800)



1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	12BE6	22K	.5Ω	25Ω	12Ω	†1200Ω	†1200Ω	2.7Meg
V2	12BA6	2.7Meg	0Ω	25Ω	35Ω	†1200Ω	†1200Ω	0Ω
V3	12AV6	6.8Meg	0Ω	12Ω	0Ω	550K	0Ω	†470K
V4	50C5	120Ω	470K	35Ω	85Ω	470K	†1200Ω	†340Ω
V5	35W4	TP	TP	85Ω	120Ω	120Ω	112Ω	10K

† MEASURED FROM PIN 7 OF V5.
TP TIE POINT

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PHOTOFACT* Folder

*TRADE MARK

CROSLEY MODELS AC-10B, M, AC-11B, M, AH-10B, AH-11B, AT-10B, M, AT-11B, M (Ch. 487, 488)

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CROSLEY MODELS AC-10B, M, AC-11B, M, AH-10B, AH-11B, AT-10B, M, AT-11B, M (Ch. 487, 488)

CROSLEY MODEL AT-10B (Ch. 487)

TRADE NAME	Crosley	MODELS	CHASSIS
		AC-10B, AC-10M, AH-10B, AT-10B, AT-10M	487
		AC-11B, AC-11M, AH-11B, AT-11B, AT-11M	488
MANUFACTURER	Crosley Division, Avco Manufacturing Corp., Cincinnati 25, Ohio		
TYPE SET	Television Receiver		
TUBES	Fifteen		
POWER SUPPLY	110-120 Volts AC-60 Cycle	RATING 140 Watts, 1.28 Amp. @ 117 Volts AC	
TUNING RANGE	(Ch. 487) Channels 2 thru 13 VHF, Video IF 26.4MC, Sound IF 21.9MC (Intercarrier)		
	(Ch. 488) Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)		

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Schematic (TV) 2
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DATE 3-57 SET 351 FOLDER 4

PHOTOFACT* Folder
*TRADE MARK

CROSLEY MODELS AC-10B, M, AC-11B, M, AH-10B, AH-11B, AT-10B, M, AT-11B, M (Ch. 487, 488)

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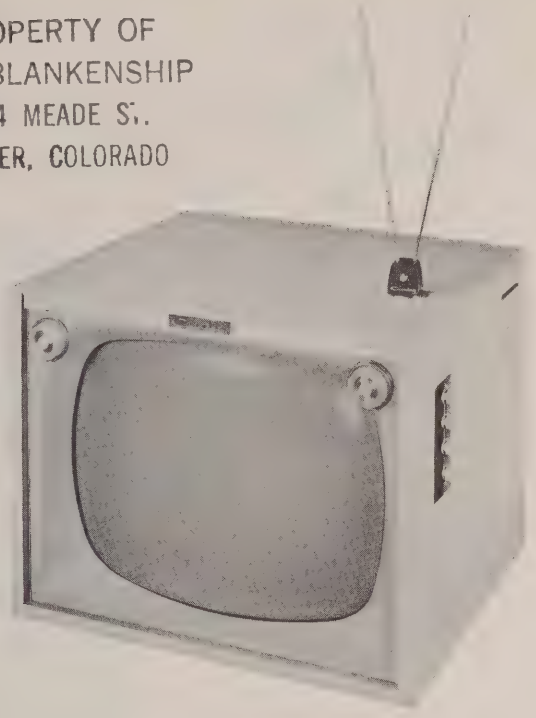
DISASSEMBLY INSTRUCTIONS

CABINET REMOVAL

1. Remove 7 push-on type control knobs.
2. Remove 5 wood screws. Remove rear cover.
3. Remove 1 wood screw. Remove antenna terminal board.
4. Remove 2 hex nuts holding volume control panel. Remove panel.
5. Remove 2 wood screws holding chassis brace near tuner.
6. Remove 2 wood screws holding lower corner braces to base.
7. Remove 6 cabinet bolts and 1 wood screw from bottom of board.
8. Remove 2 speaker wires.
9. Remove 2 speaker nuts. Remove speaker.
10. Slide cabinet forward and lift up to remove.



CAUTION NOTE

ONE SIDE OF AC LINE CONNECTED TO CHASSIS
Care should be exercised when connecting test equipment or physically contacting chassis.

MODEL	CHASSIS
AT-10B	487

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustments of the VHF tuner oscillator circuit may be accomplished by removing the channel selector and fine tuning knobs.

PICTURE TUBE SAFETY GLASS CLEANING

1. Remove Volume, contrast, channel selector, and fine tuning knobs.
2. Remove 2 wood screws holding metal strip at top.
3. Using extreme caution remove safety glass.

SERVICE ADJUSTMENT LOCATION

See tube placement chart on page 5.

SPECIAL ADJUSTMENT - PICTURE GUARD

1. Set control at maximum counter clockwise position and tune in strongest station in area.
2. Advance control clockwise only for enough to stabilize picture.

FOCUS

Focus may be varied in steps by position of plug in focus adjustment board. Readjust ion trap for best focus consistent with maximum brightness.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

Set the horizontal hold control at the center of its range of rotation and adjust the horizontal lock trimmer (B1) until the picture synchronizes horizontally.

SOUND IF DETECTOR BUZZ ADJUSTMENT

Adjust the buzz control for maximum volume and MINIMUM buzz.

FUSES

A 7.5Ω fusible resistor (R78) is used for LV power supply protection.

CENTERING

Centering is accomplished mechanically by adjusting two magnetic rings around the neck of the picture tube. Rotate the two rings around the neck of the tube until the picture is properly centered.

CROSLEY MODELS AC-10B, M, AC-11B, M, AH-10B, AH-11B, AT-10B, M, AT-11B, M (Ch. 487, 488)

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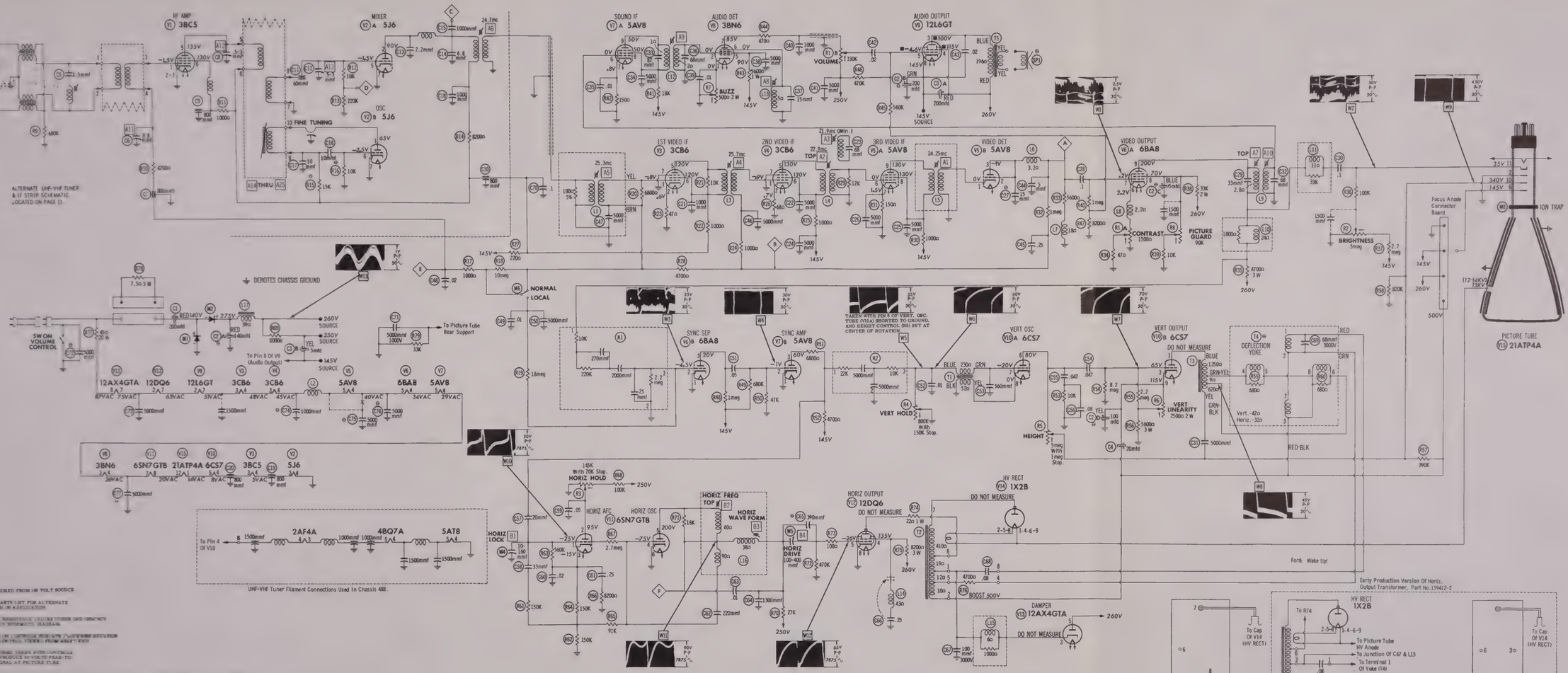
RF AMP V1 3BC5
MIXER V2A 5J6
OSC V2B 5J6
10 FINE TUNING
SOUND IF V7A 5AV8
AUDIO DET V8 3BN6
AUDIO OUTPUT V9 12L6GT
VOLUME
BUZZ
1ST VIDEO IF V3 3CB6
2ND VIDEO IF V4 3CB6
3RD VIDEO IF V5A 5AV8
VIDEO DET V5B 5AV8
VIDEO OUTPUT V6A 6BA8
CONTRAST
PICTURE GUARD
BRIGHTNESS
Focus Anode Connector Board
ION TRAP
PICTURE TUBE V15 21ATP4A
ALTERNATE UHF-VHF TUNER & I.F. STRIP SCHEMATIC LOCATED ON PAGE 11.
DENOTES CHASSIS GROUND
NORMAL
LOCAL
SW ON VOLUME CONTROL
To Picture Tube Rear Support
To Pin 8 Of V9 (Audio Output)
SYNC SEP. V6B 6BA8
SYNC AMP V7B 5AV8
TAKEN WITH PIN 8 OF VERT. OSC. TUBE (V10A) SHORTED TO GROUND, AND HEIGHT CONTROL (R5) SET AT CENTER OF ROTATION.
VERT OSC V10A 6CS7
VERT HOLD
VERT OUTPUT V10B 6CS7
DO NOT MEASURE
VERT LINEARITY
HEIGHT
DEFLECTION YOKE
Vert. - 42Ω
Horiz. - 3Ω
RED-BLK
12AX4GTA 12DQ6 12L6GT 3CB6 3CB6 5AV8 6BA8 5AV8
3BN6 6SN7GTB 21ATP4A 6CS7 3BC5 5J6
2AF4A 4BQ7A 5AT8
UHF-VHF Tuner Filament Connections Used In Chassis 488.
HORIZ LOCK
HORIZ HOLD
HORIZ AFC
HORIZ OSC
HORIZ FREQ
HORIZ WAVE FORM
HORIZ DRIVE
HORIZ OUTPUT V12 12DQ6
DO NOT MEASURE
HV RECT V14 1X2B
DAMPER V13 12AX4GTA
BOOST 500V
Fork Wake Up!
Early Production Version Of Horiz. Output Transformer, Part No. 194422-2
To Picture Tube HV Anode
To Junction Of C67 & L15
To Terminal 1 Of Yoke (T4)
To Terminals 2 & 7 Of Yoke (T4) (Boost)
To Junction Of C4, R57, Focus Anode Connector Board & Terminal 3 Of Yoke (T4)
HV TRANSFORMER TERMINAL BOARD (Viewed From Transformer Side)
To Cap Of V14 (HV RECT)
CROSLEY MODELS AC-10B, M, AC-11B, M, AH-10B, AH-11B, AT-10B, M, AT-11B, M (Ch. 487, 488)

● MEASURED FROM 145 VOLT SOURCE

● SEE PARTS LIST FOR ALTERNATE TUBE COMPLEMENT

DC VOLTAGE MEASUREMENTS TAKEN WITH VACUUM TYPE VOLTMETER. AC VOLTAGE MEASURED AT 1,000 OHMS PER VOLT.

Pin numbers are counted in a clockwise direction looking at socket.

1. DC voltage measurements taken with vacuum tube voltmeter. AC voltage measured at 1,000 ohms per volt.
2. Pin numbers are counted in a clockwise direction looking at socket.
3. Measured values are from socket pin to common negative (chassis) connection.
4. Line voltage maintained at 117 volts for voltage readings.
5. All controls set for normal operation, no signal applied.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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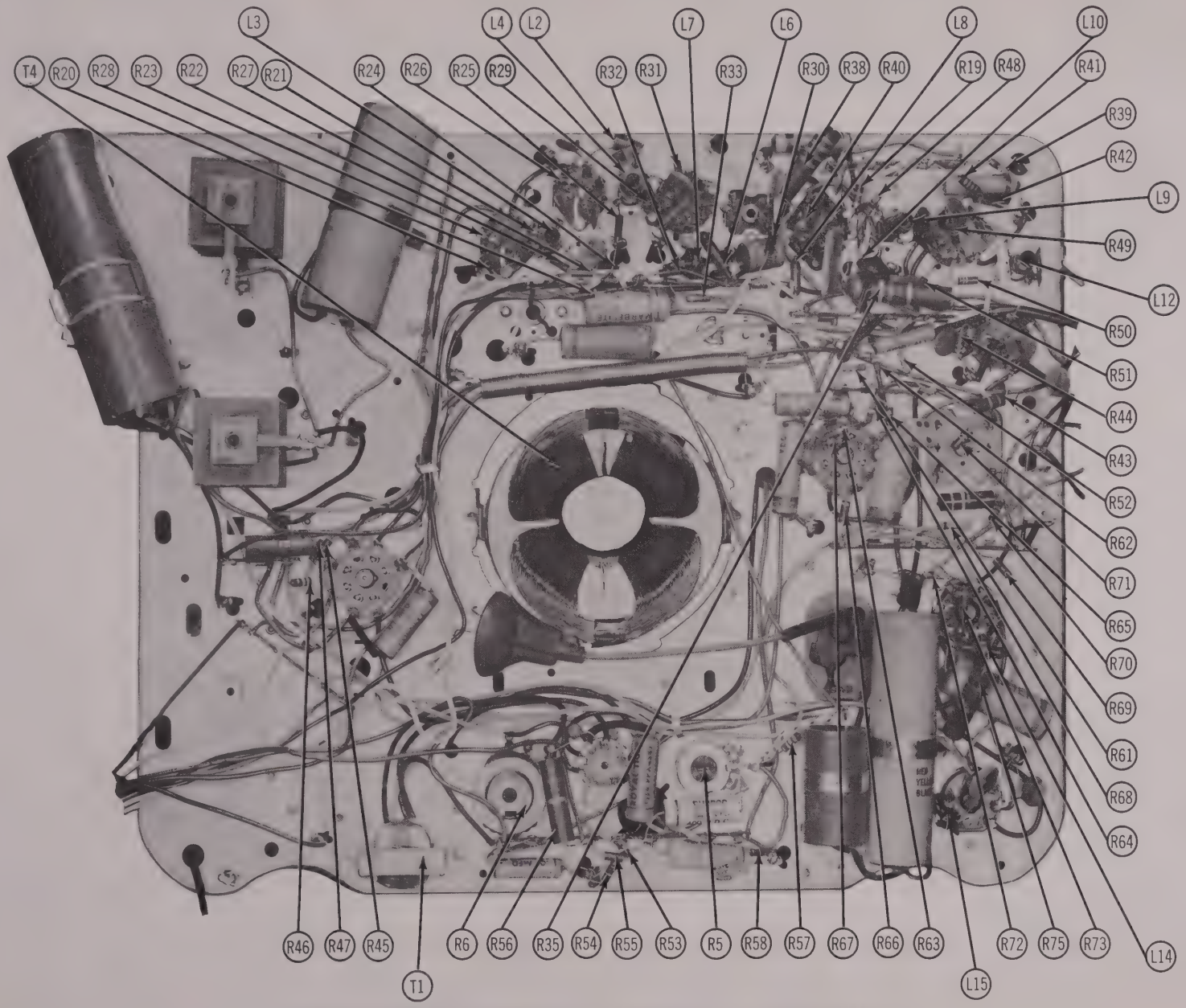
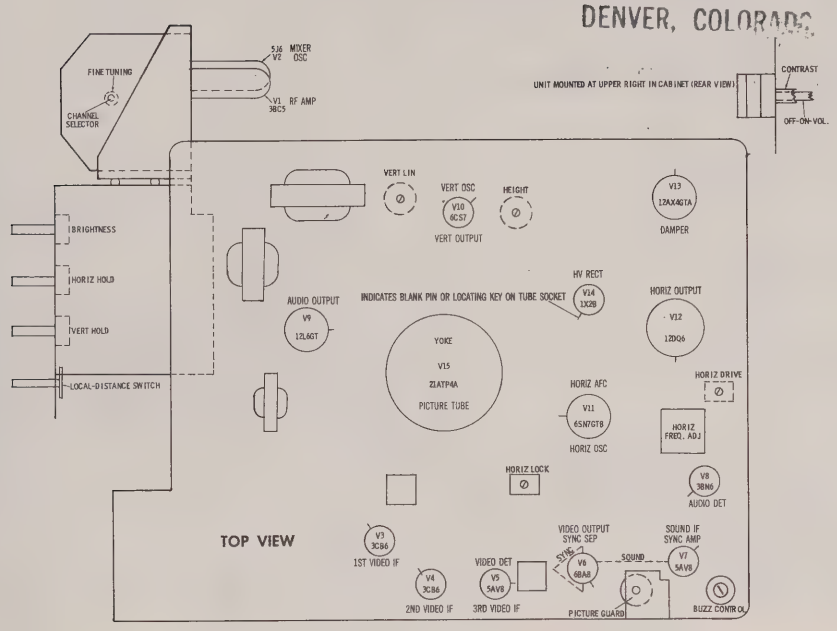
CROSLEY MODELS AC-10B, M, AC-11B, M, AH-10B, AH-11B, AT-10B, M, AT-11B, M (Ch. 487, 488)



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

TUBE PLACEMENT CHART

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO



TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

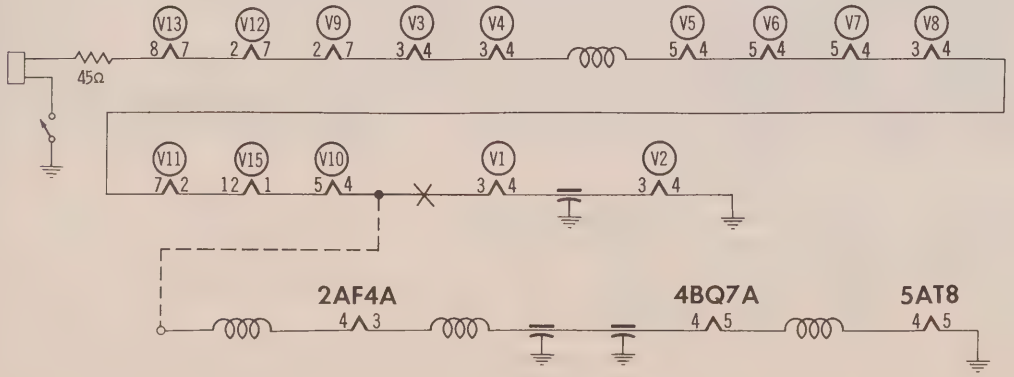
POWER SUPPLY FAILURE
No raster, no sound - Fusible resistor (R78), Rectifier (M1, M2)

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - V3, V4, V5, V6, V9
No pic, no sound, has snow - V1, V2, V3
No pic, has sound, has raster - V6, V15
Has pic, no sound - V7, V8, V9

SYNC FAILURE
No vert. sync - V6, V7, V10, V9
No horiz. sync - V6, V7, V11, V9
No vert. or horiz. sync - V6, V7, V9

SWEEP FAILURE
No raster, has sound - V11, V12, V13, V14, V15
No vertical deflection - V10
Poor vert. linearity or foldover - V10
Poor horiz. linearity or foldover - V11, V12, V13
Narrow picture - V11, V12, V13, M1, M2
Vert. off freq. - V6, V7, V10, V9
Horiz. off freq. - V6, V7, V11, V9

NOTE: Since this receiver employs tubes used in a series filament network, an open filament in any tube in the series will cause the set to be inoperative (See circuit below).



SET 351 FOLDER 4

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

All leads from the sweep generator and marker must be shielded and keep exposed ends as short as possible. Always make the ground connection as close as possible to the connection of the high side.
The high voltage lead should be securely taped and kept away from the chassis.
Use an isolation transformer to protect the test equipment.

VIDEO IF ALIGNMENT CHASSIS 487

Connect the negative lead of a 3 volt bias supply to point Ⓑ. Positive to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough generator output to provide usable indication on VTVM.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	.01MFD	High side to point Ⓒ. Low side to chassis.	34.25MC	Any non-interfering channel	DC probe to point Ⓐ. Common to chassis.	A1	Adjust for maximum deflection on VTVM.
2.	"	"	22.9MC	"	"	A2	Adjust for maximum deflection on VTVM. Use first peak from clip end of coil.
3.	"	"	21.9MC	"	"	A3	Adjust for MINIMUM deflection with generator output level sufficient to produce .5 volts at MINIMUM setting of slug. Use null furthest from clip end of coil. Repeat steps 2 and 3.
4.	"	"	25.7MC	"	"	A4	Adjust for maximum deflection on VTVM.
5.	"	"	25.3MC (See remarks)	"	"	A5	Adjust for maximum deflection on VTVM. Use peak nearest clip end of coil. On Code "A" chassis, use 28.2MC.
6.	"	High side to point Ⓓ. Low side to chassis.	24.75MC (See remarks)	"	"	A6	Connect a 100Ω resistor and a 1000MMF capacitor from pin 1 (grid) of 3CB6 (V3) to chassis. Adjust A6 for maximum deflection on VTVM. Remove resistor and capacitor. On Code "A" chassis use 26.2MC.

VIDEO IF ALIGNMENT CHASSIS 488

Connect the negative lead of a 3 volt bias supply to point Ⓑ. Positive to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough generator output to provide usable indication on VTVM.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
7.	.01MFD	High side to point Ⓒ. Low side to chassis.	43.75MC	Any non-interfering channel	DC probe to point Ⓐ. Common to chassis.	A26	Adjust for maximum deflection on VTVM.
8.	"	"	42.25MC	"	"	A27	Adjust for maximum deflection on VTVM. Use first peak from clip end of coil.
9.	"	"	41.25MC	"	"	A28	Adjust for MINIMUM deflection with generator output level sufficient produce .5 volt at minimum setting of slug. Use null point farthest from chassis. Repeat steps 8 and 9.
10.	"	"	44.85MC	"	"	A29	Adjust for maximum deflection on VTVM.
11.	"	"	45.0MC	"	"	A30	Adjust for maximum deflection on VTVM. Use peak nearest clip end of coil.
12.	"	High side to point Ⓓ. Low side to chassis.	45.0MC (See remarks)	"	"	A31	Connect a 100Ω resistor and a 1000MMF capacitor from pin 1 (grid) of 3CB6 (V3) to chassis. Adjust A31 for maximum deflection on VTVM. Remove resistor and capacitor.

OVERALL VIDEO IF RESPONSE CHECK FOR CHASSIS 487

Leave bias connected as under "Video IF Alignment".
Set the contrast control fully counter clockwise. Set the area switch to the normal position.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide usable pattern on scope.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
13.	Direct	High side to ungrounded tube shield floating over converter tube. Low side to chassis.	24MC (10MC Swp)	21.9MC 22.9MC 24.25MC 25.1MC 25.7MC 26.4MC 27.9MC	Any non-interfering VHF channel	Vert. Amp. to high side of contrast control. (Set control to MINIMUM). Low side to chassis.		Retouch A1 thru A6 if necessary to obtain response curve similar to Fig. 1 with markers as indicated.

OVERALL VIDEO IF RESPONSE CHECK FOR CHASSIS 488

Leave bias connected as under "Video IF Alignment".
Set the contrast control fully counter clockwise. Set the area switch to the normal position.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide usable pattern on scope.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
14.	Direct	High side to ungrounded tube shield floating over converter tube. Low side to chassis.	43.75MC (10MC Swp)	39.75MC 41.25MC 43.25MC 43.75MC 44.85MC 45.75MC 47.25MC	Any non-interfering channel	Vert. Amp. thru 68K to point Ⓐ. Low side to chassis.		Retouch A26 thru A31 if necessary to obtain response curve similar to Fig. 4 with markers as indicated.

4.5MC TRAP ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
15.	.01MFD	High side to pin 7 (grid) of 6BA8 (V8). Low side to chassis.	4.5MC (400% 30% AM Mod)	Any non-interfering channel	Vert. Amp. thru detector probe to pin 11 (cathode) of picture tube. Low side to chassis.	A7	Adjust for MINIMUM 400% indication on scope.

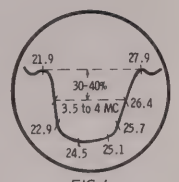


FIG. 1

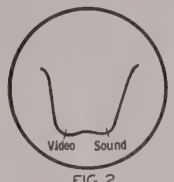


FIG. 2

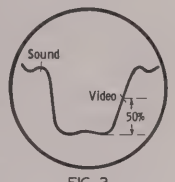


FIG. 3

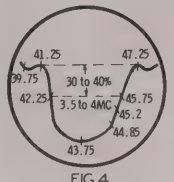


FIG. 4

SOUND IF ALIGNMENT (AIR SIGNAL)

1. The picture guard and local-normal controls should be properly adjusted before attempting alignment.
2. Tune in a strong TV signal and set the buzz control (R7) 90 degrees from full clockwise position. Adjust A8 for maximum sound output. If two peak points occur, use the second peak from the end farthest from the chassis.
3. Using an attenuator, reduce the signal below the limiting level of the 3BN6. This level will be recognized by a hiss in the sound similar to super regeneration. If an attenuator is not available, reduce the signal by disconnecting the antenna and placing in the vicinity of the antenna terminals. Adjust A9 and A10 for maximum sound output. Adjust the buzz control (R7) for minimum noise in the sound. If the hiss disappears during this alignment, reduce the signal farther until the hiss returns.
4. Adjust the attenuator for zero attenuation or reconnect the antenna to obtain a strong signal and retouch A8 for maximum sound output. Repeat steps 2 and 3.

SOUND IF ALIGNMENT USING TEST EQUIPMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
16.	.01MFD	High side to pin 7 (grid) of 6BA8 (V6). Low side to chassis.	4.5MC (FM mod. 400% 15KC Swp)	Any non-interfering channel	Across speaker.	A8	Set buzz control (R7) 90 degrees from full clockwise position. Set volume control at low level. Use a high input signal and adjust A8 for maximum 400% indication. Use second peak from end farthest from chassis.
17.	"	"	"	"	"	A9, A10	Reduce input signal below the limiting level of the 3BN6 and adjust for maximum 400% indication keeping signal below limiting level.
18.	"	"	4.5MC (AM mod. 400%)	"	"	R7	Using a high signal input, adjust R7 for MINIMUM 400% on scope.
19.	"	"	4.5MC (FM mod. 400% 15KC Swp)	"	"		Using a high signal input volume control at low level retouch A8 for maximum 400% on scope.

RF AND MIXER ALIGNMENT

Connect the negative lead of a 2.5 volt bias supply to point Ⓔ. Positive to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide usable pattern on scope.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
20.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	207MC (10MC Swp)	205.25MC 209.75MC	12	Vert. Amp. thru 10K to point Ⓓ. Low side to chassis.	A11, A12, A13	Adjust for response curve similar to Fig. 2. with markers above 90%.
21.	"	"	213MC (10MC Swp)	211.25MC 215.75MC	13	"		Check for response similar to Fig. 2. If markers fall below 70% on any channel, make compromise adjustments of A11, A12 and A13, with channel switch set to that channel. Check all other channels to see that they have not been seriously affected.
			201MC (10MC Swp)	199.25MC 203.75MC	11			
			195MC (10MC Swp)	193.25MC 197.75MC	10			
			189MC (10MC Swp)	187.25MC 191.75MC	9			
			183MC (10MC Swp)	181.25MC 185.75MC	8			
			177MC (10MC Swp)	175.25MC 179.75MC	7			
			85MC (10MC Swp)	83.25MC 87.75MC	6			
			79MC (10MC Swp)	77.25MC 81.75MC	5			
			69MC (10MC Swp)	67.25MC 71.75MC	4			
			63MC (10MC Swp)	61.25MC 65.75MC	3			
			57MC (10MC Swp)	55.25MC 59.75MC	2			

VHF OSCILLATOR ALIGNMENT

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the fine tuning control to the mid-position of its range.
Use only enough sweep generator output to provide usable pattern on scope.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
22.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	213MC (10MC Swp)	211.25MC 215.75MC	13	Vert. Amp. thru 47K to point Ⓐ. Low side to chassis.	A14	Adjust to place sound marker in trap notch as in Fig. 3. Video marker should fall at 50%.
			207MC (10MC Swp)	205.25MC 209.75MC	12		A15	
			201MC (10MC Swp)	199.25MC 203.75MC	11		A16	
			195MC (10MC Swp)	193.25MC 197.75MC	10		A17	
			189MC (10MC Swp)	187.25MC 191.75MC	9		A18	
			183MC (10MC Swp)	181.25MC 185.75MC	8		A19	
			177MC (10MC Swp)	175.25MC 179.75MC	7		A20	
			85MC (10MC Swp)	83.25MC 87.75MC	6		A21	
			79MC (10MC Swp)	77.25MC 81.75MC	5		A22	
			69MC (10MC Swp)	67.25MC 71.75MC	4		A23	
			63MC (10MC Swp)	61.25MC 65.75MC	3		A24	
			57MC (10MC Swp)	55.25MC 59.75MC	2		A25	

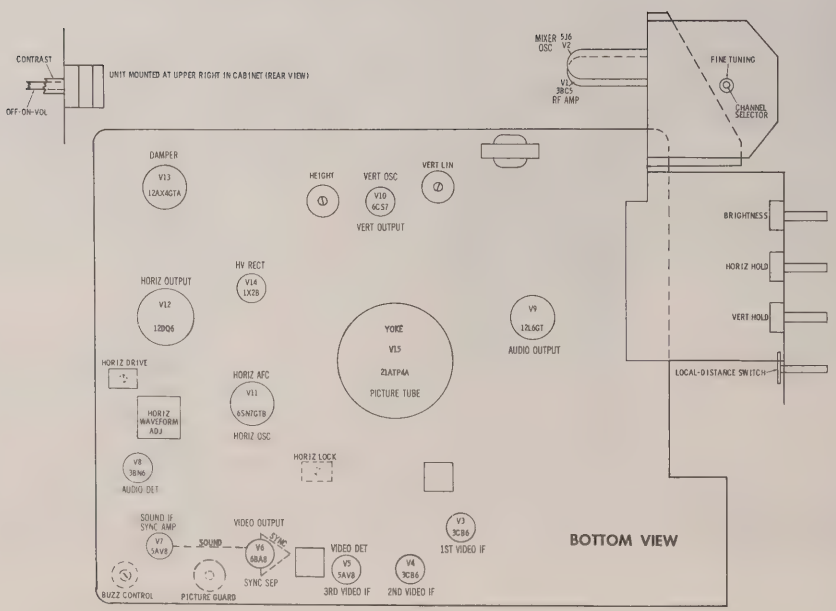
UHF ALIGNMENT

This portion of the receiver has been properly aligned at the factory and is very stable. Alignment of this portion should not be required in the field.

RESISTANCE MEASUREMENTS

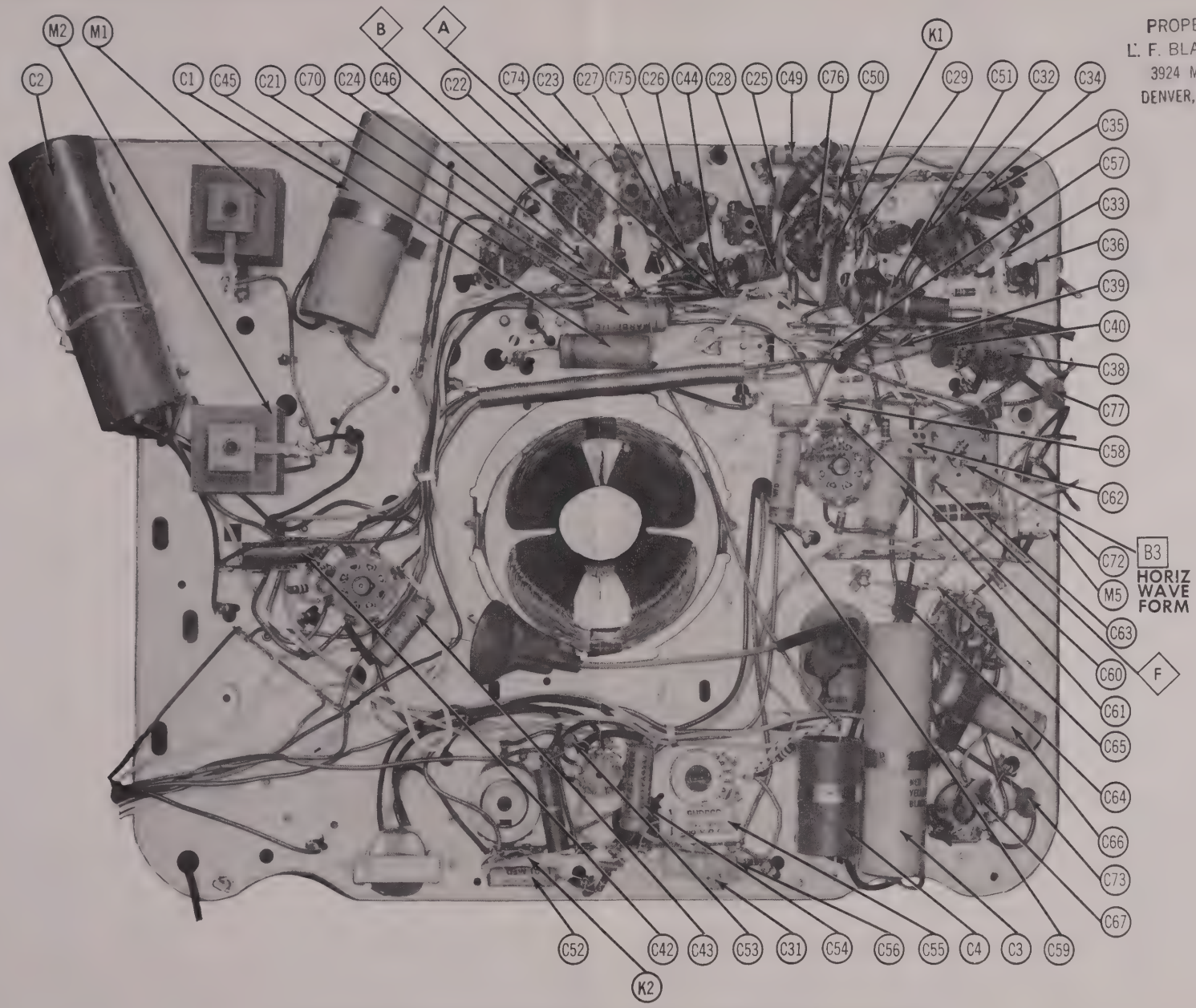
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	3BC5	1Meg	0Ω	2Ω	1.2Ω	■ 220Ω	■ 1200Ω	0Ω		
V2	5J6	■15K	■ 8400Ω	1.2Ω	0Ω	230K	10K	0Ω		
V3	3CB6	1Meg	47Ω	13Ω	12Ω	■ 1200Ω	■1200Ω	0Ω		
V4	3CB6	1Meg	68Ω	12Ω	11Ω	■1000Ω	■ 1000Ω	0Ω		
V5	5AV8	.3Ω	5600Ω	5600Ω	10Ω	11Ω	.3Ω	150Ω	■ 1000Ω	■1000Ω
V6	6BA8	0Ω	2.2Meg	■ 1Meg	9.5Ω	10Ω	● 180Ω	1Meg	† 25K	† 4700Ω
V7	5AV8	0Ω	47K	■11K	8Ω	9.5Ω	.8Ω	150Ω	■18K	■ 18K
V8	3BN6	● 15Ω	2Ω	8Ω	7Ω	■ 5600Ω	5Ω	† 330K		
V9	12L6GT	NC	16Ω	† 250Ω	† 59Ω	† 260K	TP	13Ω	100K	
V10	6CS7	‡1300Ω	NC	1.6Meg	2Ω	4Ω	● 2.2Meg	● 400K	52Ω	● 5800Ω
V11	6SN7GTB	820K	●† 70K	300K	240K	† 28K	0Ω	7Ω	5.5Ω	
V12	12DQ6	TP	18Ω	TP	† 8200Ω	470K	TP	16Ω	0Ω	TOP CAP ‡ 46Ω
V13	12AX4GTA	NC	TP	330K	NC	† 59Ω	NC	18Ω	20Ω	
V14	1X2B	PINS 1 THRU 9 HAVE INF RESISTANCE								TOP CAP ‡ 435Ω
V15	21ATP4A	4Ω	0Ω	PIN 6 ■ 0Ω	PIN 10 ‡390K	PIN 11 ● 380K	PIN 12 5.5Ω			

AREA SWITCH (M7) IN NORMAL POSITION.
† MEASURED FROM OUTPUT OF M2.
● THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
■ MEASURED FROM 145 VOLT SOURCE.
‡ MEASURED FROM PIN 3 OF V13.

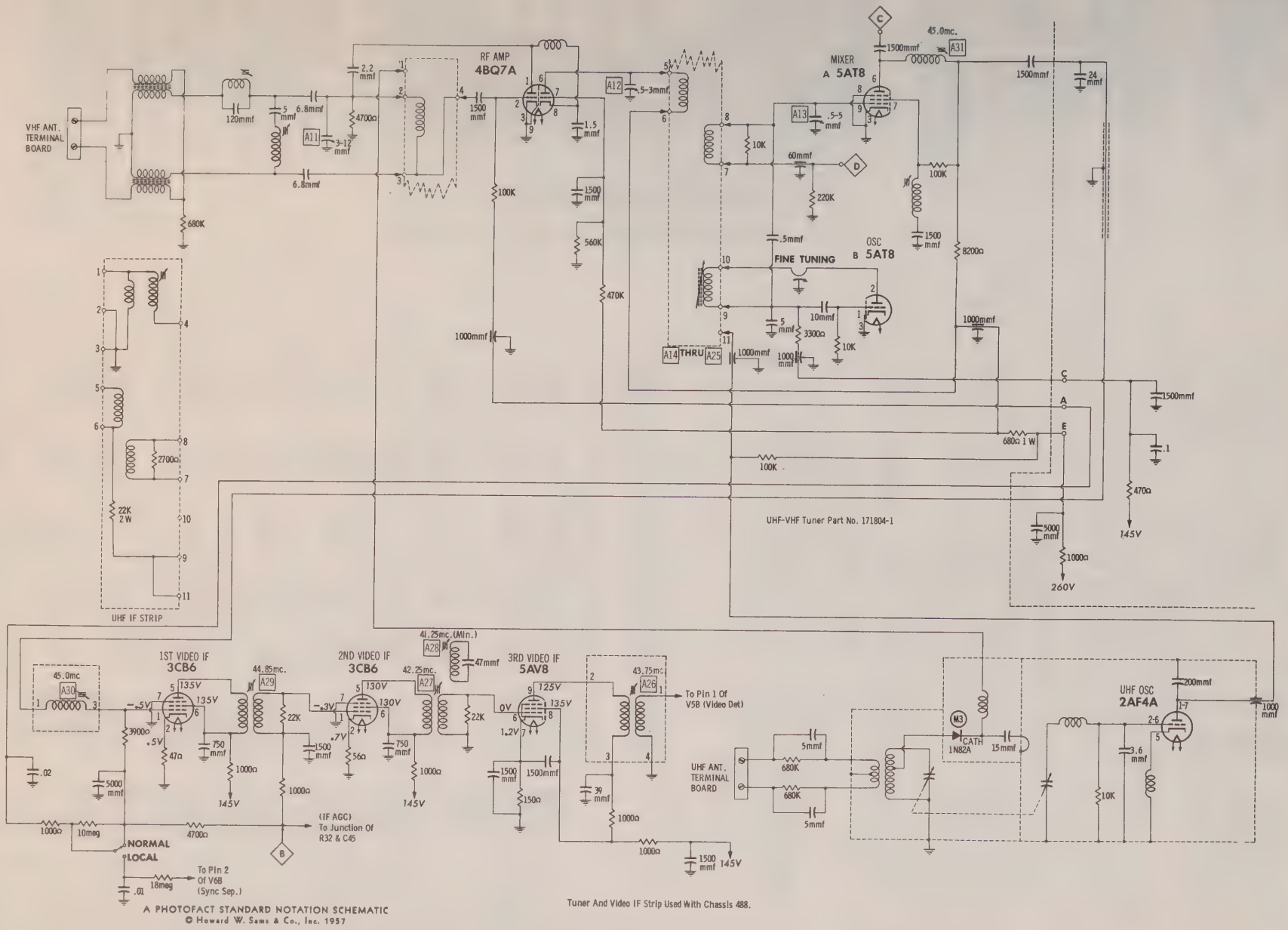


TUBE PLACEMENT CHART

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO



CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION



ALTERNATE UHF - VHF TUNER & IF SCHEMATIC

CROSLEY MODELS AC-10B, M, AC-11B, M, AH-10B, AH-11B, AT-10B, M, AT-11B, M (Ch. 487, 488)

SET 351 FOLDER 4

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No	USE	TYPE	NOTES
V1	R.F. Amplifier	3BC5	
V2	Mixer -Oscillator	5J6	
V3	1st. Video I.F Amplifier	3CB6	
V4	2nd. Video I.F Amplifier	3CB6	
V5	3rd. Video I.F Amp. - Video Detector	5AV8	
V6	Video Output-Sync Sep.	6BA8	
V7	Sound I.F Amp. -Sync Amp.	5AV8	

ITEM No.	USE	TYPE	NOTES
V8	Audio Detector	3BN6	
V9	Audio Output	12L6GT	
V10	Vert. Osc. -Vert. Output	6CS7	
V11	Horiz. AFC-Horiz. Osc.	6SN7GTB	
V12	Horiz. Output	12DQ6	
V13	Damper	12AX4GTA	
V14	HV Rectifier	1X2B	

PICTURE TUBE

ITEM No	REPLACEMENT DATA				NOTES
	CROSLEY PART No	CBS PART No.	GENERAL ELECTRIC PART No.	SYLVANIA PART No.	
V15	21ATP4A	21ATP4	21ATP4A/21ATP4	21ATP4A ① 21ATP4/ ① 21ATP4A ② 21BTP4	① Aluminized ② Silver screen

ELECTROLYTIC CAPACITORS

ITEM No	RATING		REPLACEMENT DATA						
	CAP	VOLT	CROSLEY PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1	200	200	158557-3	PR1-075	EZ10408	WS342	TD-200-200	D-100	TVA-1480
C2A	140	350	159940-3	PR4-875		WT449	CDB-Q-1008		R2306 *
B	200	300	(Note 1)			TC493	TD-80-150		
C	5	300							
D	100	150							
C3A	300	200	159317-1	PR2-275	EZ10408	WD345		D-100	R2063 *
B	5	200			BR435			MT-3504	
C4	20	500	159569-1	PRS500V20	BR2050	TC83	TD-20-500	S-315	TVA-1906

Note 1. Alternate part #159940-4 used in Ch. 488.
* Non-catalog item.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	CROSLEY PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C5	1.5			NP0-811.5	TCZ-1R5	C10V15C	TCO-1.5	ZT-5515	5TCCB-V15	
C6	3-8									
C7	800									
C8	.5-3				829-3		3115-D		CT565A	
C9										
C10	800									
C11	80									
C12	.5-3				829-3		3115-D		CT565A	
C13	2.2			NP0-81 2.2	TCZ-2R2	C10V22C	TCO-2.2		5TCCB-V22	
C14	6.8			NP0-81 6.8	TCZ-6R8	C10V68C	TCO-6.8	ZT-5568	5TCCB-V68	
C15	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C16	10									
C17	10									
C18	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C19	800									
C20	800									
C21	1000		144675-14	BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C22	5000		144675-2	BPD-005	DD-502	BYA6D5	GP-5000	DC525	5HK-D5	
C23	68		137499-33	1468-000068		5W5Q68			MS-468	
C24	5000		144675-2	BPD-005	DD-502	BYA8D5	GP-5000	DC525	5HK-D5	
C25	5000		144675-2	BPD-005	DD-502	BYA6D6	GP-5000	DC525	5HK-D6	
C26	5000		144675-2	BPD-005	DD-502	BYA6D5	GP-5000	DC525	5HK-D5	
C27	15		137727-43							Note 2
C28	.1	150	157906-1	P288N-1	DF-104	CUB2P1		GEM-201	2TM-P1	
C29	33		137727-126							
C30	.1	400	39478-47	P488N-1	DF-104	CUB4P1		GEM-401	4TM-P1	
C31	5000		158215-25	BPD-005	DD-502	BYA6D5	GP-5000	DC525	5HK-D5	
C32	1000		137727-133	BPD-000068	DD-880	L10Q68	ED-68	UC-5468	5GA-Q68	
C33	82		137727-54							
C34	5000		144675-2	BPD-005	DD-502	BYA6D5	GP-5000	DC525	5HK-D5	
C35	.01	200	39478-41	BPD-01	DD-103	CUB2S1		GEM-211	2TM-S1	
C36	68		137727-133	BPD-000068	DD-880	L10Q68	ED-68	UC-5468	5GA-Q68	
C37	15		137727-43							
C38	5000		144675-2	BPD-005	DD-502	BYA6D5	GP-5000	DC525	5HK-D5	
C39	.01	200	39478-41	BPD-01	DD-103	CUB2S1		GEM-211	2TM-S1	
C40	1000		158215-17	BPD-001	DD-102	BYA8D1	ED-1000	DC521	5HK-D1	
C41	5000		144675-2	BPD-005	DD-502	BYA6D5	GP-5000	DC525	5HK-D5	
C42	.02	200	39001-80	BPD-02	DF-203	CUB2S2		GEM-213	2TM-S2	
C43	.02	400	39001-80	BPD-02	DF-203	CUB4S2		GEM-412	4TM-S2	
C44	5		137727-103	NP0-81 5	TCZ-5	L10V5	ED-5	ZT-555	5TCCB-V47	
C45	25	25	157810-1	P288N-25		CUB2P25		GEM-2025	2TM-P25	
C46	5000		144675-2	BPD-005	DD-502	BYA6D5	GP-5000	DC525	5HK-D5	
C47	5000		144675-2	BPD-005	DD-502	BYA6D5	GP-5000	DC525	5HK-D5	
C48	.2	150	170830-3	BPD-02	DF-203	CUB2S2		GEM-212	2TM-S2	
C49	.01	200	39478-41	BPD-01	DF-103	CUB2S1		GEM-211	2TM-S1	
C50	5000		144675-2	BPD-005	DD-502	BYA8D5	GP-5000	DC525	5HK-D5	
C51	.05	200	39001-17	BPD-05	DF-503	CUB2S5		GEM-215	2TM-S5	
C52	.01	400	39478-41	BPD-01	DD-103	CUB4S1		GEM-411	4TM-S1	
C53	560		144675-32	BPD-00056	DD-561	BYA10T56	ED-560	UC-5356	5GA-T56	
C54	.047	400	39478-45	BPD-05	DF-503	CUB4S47		GEM-4147	4TM-S47	
C55	.047	400	39478-45	BPD-05	DF-503	CUB4S47		GEM-4147	4TM-S47	
C56	.08	200	39001-86	P288N-075						
C57	20		137727-61							
C58	33		137727-126							
C59	.05	400	39001-17	BPD-05	DF-503	CUB4S5		GEM-415	4TM-S5	
C60	.02	200	157810-1	BPD-02	DF-203	CUB2S2		GEM-212	2TM-S2	
C61	25	25	39001-80	P288N-25		CUB2P25		GEM-2035	2TM-P25	
C62	220		137498-22	1468-00022		5W5T22			MS-322	
C63	.01	400	170996-1	BPD-01	DF-103	CUB4S1		GEM-411	4TM-S1	
C64	1300		137499-57	BPD-0015	DD-152	BYA10D15	ED-1200	UC-5212	5HK-D15	
C65	390		158215-77	BPD-00039	DD-391	L10T39	ED-390	UC-5339	5GA-T39	
C66	.25	400	39001-87	P488N-25		CUB4P25		GEM-4025	4TM-P25	Note 3
C67	100	3000	158215-33							
C68	.08	200	159439-1	P288N-075						
C69	68	3000	158215-3							
C70	.1	400	39478-47	P488N-1	DF-104	CUB4P1		GEM-401	4TM-P1	
C71	5000	1000	158215-4		DD-502	BYA10D5			10HKB-D47	
C72	5000		144675-2	BPD-005	DD-502	BYA6D5	GP-5000	DC525	5HK-D5	Note 4
C73	5000		144675-2	BPD-005	DD-502	BYA6D5	GP-5000	DC525	5HK-D5	
C74	1000		144675-14	BPD-001	DD-102	BYA8D1	ED-1000	DC521	5HK-D1	Note 4
C75	5000		144675-2	BPD-005	DD-502	BYA6D5	GP-5000	DC525	5HK-D5	Note 4

CAPACITORS (cont)

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	CROSLEY PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No	SPRAGUE PART No.	
C76	5000		144675-2	BPD-005	DD-502	BYA6D5	GP-5000	DC525	5HK-D5	Note 4
C77	5000		144675-2	BPD-005	DD-502	BYA6D5	GP-5000	DC525	5HK-D5	Note 4

Note 2. A 10MMF capacitor (part #137727-135) used in Ch. 488.
Note 3. A 220MMF capacitor (part #158215-53) used in Ch. 487 (Code C and later),and Ch. 488 (Code B and later).
Note 4. A 1500MMF capacitor (part #144675-30) used in Ch. 488.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	CROSLEY PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	1500Ω	½	171693-1	F1-6			UF152R	Contrast
B	330K	½		R4-42			UR354A	Volume
C	Switch			KB-1			US-26	
R2	5Meg	½	171716-1			Q17-141		Brightness
R3A	145K	½	171715-1	♦AB-43	♦A47-150K-S	♦Q11-126		Horiz. Hold with 70K stop
B	Shaft			AK-3	FS-3	Not Req.		
R4A	800K	½	171717-1	*B-89	*A47-750K-S	*Q11-136	*U54	Vert. Hold with 150K stop
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R5A	5Meg	½	15806-1	†AB-87	†A47-5Meg-S	†Q11-141	†PTA56L	Height - with 1Meg stop
B	Shaft			AK-19	RN-3	TQ	Not Req.	
R6A	2500Ω	2	159766-1		A43-2500			Vert. Lin. - wire wound
B	Shaft				RN-3			
R7	500Ω	2	157955-2		39-500		FL-600	Buzz - wire wound
R8	90K	½	159037-1				U40	Picture Guard

♦ Use 68K resistor in series with right hand terminal.
* Use 150K resistor in series with left hand terminal.
† Use 1Meg resistor in series with right hand terminal.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	CROSLEY PART No.	IRC PART No.	
R9	680K		39374-59	BTS-680K	
R10	4700Ω		39374-33	BTS-4700	
R11	1000Ω		39374-25	BTS-1000Ω	
R12	10K		39374-37	BTS-10K	
R13	220K			BTS-220K	
R14	8200Ω		39374-36	BTS-8200	
R15	15K			BTS-15K	Note 1
R16	10K		39374-37	BTS-10K	Note 2
R17	1000Ω		39374-25		
R18	10Meg		39374-85		
R19	18Meg		39374-88		
R20	6800Ω		39374-35		
R21	10K		39374-37		
R22	1000Ω		39374-25	BTS-1000	
R23	47Ω		39374-9	BTS-47	
R24	1000Ω		39374-25		
R25	1000Ω		39374-25	BTS-1000	
R26	68Ω		39374-11	BTS-68	
R27	220Ω		39374-17	BTS-220	
R28	4700Ω		39374-33		
R29	12K		39374-38		
R30	1000Ω		39374-25	BTS-1000	
R31	150Ω		39374-15		
R32	1Meg		39374-61		
R33	5600Ω		39374-34	BTS-5600	
R34	47Ω		39374-9	BTS-47	
R35	4700Ω	3	15691-9		
R36	100K		39374-49	BTS-100K	
R37	2.2Meg		39374-69	BTS-2.2Meg	
R38	33K	2	39374-219	BTS-33K	
R39	10K		39374-37	BTS-10K	
R40	1Meg		39374-61	BTS-1Meg	
R41	18K		39374-40	BTS-18K	
R42	150Ω		39374-15	BTS-150	
R43	5600Ω	1	39374-122	BTA-5600	
R44	470Ω		39374-21	BTS-470	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	CROSLEY PART No.	IRC PART No.	
R45	560K		39374-58	BTS-560K	
R46	470K		39374-57	BTS-470K	
R47	5200Ω		39374-36	BTS-5200	
R48	1Meg		39374-61	BTS-1Meg	
R49	680K		39374-59	BTS-680K	
R50	47K		39374-45	BTS-47K	
R51	6800Ω		39374-35	BTS-6800	
R52	4700Ω		39374-33		
R53	10K		39374-37	BTS-10K	
R54	8.2Meg		39374-83	BTS-8.2Meg	
R55	2.2Meg		39374-69	BTS-2.2Meg	
R56	5600Ω	3	15691-2		
R57	390K		39374-56	BTS-390K	
R58	820K		39374-60	BTS-820K	
R59	680Ω				
R60	860Ω				
R61	150K		39374-51	BTS-150K	
R62	150K		39374-51	BTS-150K	
R63	560K		39374-58		
R64	150K		39374-51	BTS-150K	
R65	91K 5%		39375-96		
R66	82000Ω		39374-36		
R67	2.7Meg		39374-71		
R68	100K		39374-49	BTS-100K	
R69	1000Ω		39374-25		
R70	27K		39374-42		
R71	18K		39374-40		
R72	470K		39374-57	BTS-470K	
R73	100Ω		39374-13	BTS-100	
R74	22Ω	1	39374-5	BTA-22	
R75	82000Ω	3	156911-10	PW4-8200	
R76	4700Ω		39374-33		
R77	65Ω	20	156230-3		
R78	7.5Ω	5	154089-1	FR7.5	
R79	33K		39374-131	BTS-33K	

Note 1. A 10K used in some versions (Part #39374-37).
Note 2. A 15K used in some versions.

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA							
		CROSLEY PART No.	Halldorson PART No.	Merit PART No.	RCA TYPE No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	Vert. Osc. Trans.	155255-3	B6704	A-3006				26A05	A-122C ①
T2	Horiz. Output Trans. Assembly	159412-2 ②	FB418 *	HVO-37 *		X123 *	A-8263 *	FLY-25 *	D-48 *
T3	Vert. Output Trans.	158726-2	ZI807	A-2824		Y315		26876	
T4A	Yoke (90°) Horiz. (25MH)	158420-1 ③	DF607⑤ ⑦	MDF-92 ⑤⑦	235D1⑤ ⑦	Y90F19/43 ⑤⑦	DY-16A ⑤⑦	Y-26	Y-41 & YC-1⑤③
B	Vert. (40MH)	158426-1 ④	DF607 ⑤ ⑥⑦	MDF-92 ⑤⑦	235D1⑤ ⑤	Y90F19/43 ⑤⑥⑦	DY-16A ⑤⑥⑦	Y-26	YC-1 ⑤⑧

① Drill new mounting hole(s).
② Includes resistors R74, R76, capacitor C68 and HV anode connector.
③ Includes capacitor C89 and resistors R59 and R60. Does not include yoke rear cover and centering device (Part #153386-1).
④ Alternate part number.
⑤ Use original rear cover and centering device.
⑥ Use original yoke damping network.
⑦ To mounting same as original, loosen and rotate core clamp 180 degrees. In this position, connect horizontal damping capacitor C69 across yoke terminals #1 and #2, and jumper yoke terminals #3 and #5. To mount yoke with leads out bottom as supplied, connect horizontal damping capacitor C69 across yoke terminals #3 and #7 and jumper yoke terminals #1 and #8.
⑧ Jumper yoke terminals #3 and #5.

*HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

Use Original Width Coil Unless Replacement Type Is Listed

	ORIGINAL TERMINAL CONNECTIONS	Halldorson Replacement Connections	Merit Replacement Connections	RCA Replacement Connections	Ram Replacement Connections	Stancor Replacement Connections	Thordarson Replacement Connections	Triad Replacement Connections
	6	6	6		3	6	6	6
	1 or 3	3	3		7	3	3	3
	5	5	5		2	5	5	5
	2	2	2		6	2	2	2

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	CROSLEY PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T5	2200Ω	3-4Ω	157919-1	Z1005 ⊥	A-2928 ①	A-3322	24850 ①	S-1X ①	① Drill one new mounting hole.

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	CROSLEY PART No.	QUAM PART No.	
SP1	5 1/4"	PM	3-4Ω	170385-1 ①	52AI	① Used in Models AT-10M, AT-10B, AT-11M, AT-11B
	8"	PM	3-4Ω	158832-1 ②		② Used in Models AC-10M, AC-10B, AH-10B, AC-11M, AC-11B, AH-11B

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		CROSLEY PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	1st. Video IF	172023-1	17-1003	TV-103		
L2	Fil. Choke	155256-1	19-3001	TV-189	6175	.570 Microhenry
L3	2nd. Video IF	157789-1	17-1063	TV-116	6250	
L4	3rd. Video IF	159310-1			6253 *	Includes 21.9MC trap
L5	4th. Video IF	157844-1			6251	
L6	Series Peaking Coil	154376-1			4624	15.5 Microhenries
L7	Shunt Peaking Coil	159210-1	19-3500		6144	580 Microhenries
L8	RF Choke	172674-1	19-1005		4612	10 Microhenries
L9A	4.5MC Trap	157841-1				
B	1st. Sound IF					
L10	Shunt Peaking Coil	159215-1	19-4950 ▲		6157 ▲	910 Microhenries, wound on 1800Ω resistor
L11	Series Peaking Coil	158630-1	19-3250 ▲	TV-185 ▲	6181 ▲	250 Microhenries, wound on 33K resistor
L12	2nd. Sound IF	159419-1				
L13	Quadrature Coil	159421-1			1480	
L14	RF Choke	159463-1	19-1994	BC-527	4666	2.5 Microhenries
L15	RF Choke	159463-1	19-2100 ♦	TV-181 ♦	6112♦	102 Microhenries, wound on 1000Ω resistor

* Drill new mounting hole.
▲ Parallel with 1800Ω resistor
▲ Parallel with 33K resistor
♦ Parallel with 1000Ω resistor

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES.		REPLACEMENT DATA							NOTES
	PRI.	SEC.	CROSLEY PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	RCA TYPE No.	Ram PART No.	Thordarson PART No.	
L16	130Ω		157791-1	20-1402 *	TV-162 *	6182 *	205R1 *	H-100 *	HS-3 *	Tapped ② 90Ω waveform winding

* Reverse coil mounting in can.

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA					
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ^)	CROSLEY PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
L17	.200ADC	59Ω	1.1 HY.	155529-4	C5040	C-2994	C-2327	26C41	C-27X

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	CROSLEY PART No.	REPLACEMENT DATA	
K1	Sync Couplate	270MMF, 2000MMF, 25MMF, 10K, 220K, 2.2Meg	170207-1	Aerovox	PA-532
K2	Vert. Integrator	5000MMF, 5000MMF, 22K, 10K	157812-1	Aerovox Centralab Sprague	PA-383-2 PC-106 Y-5

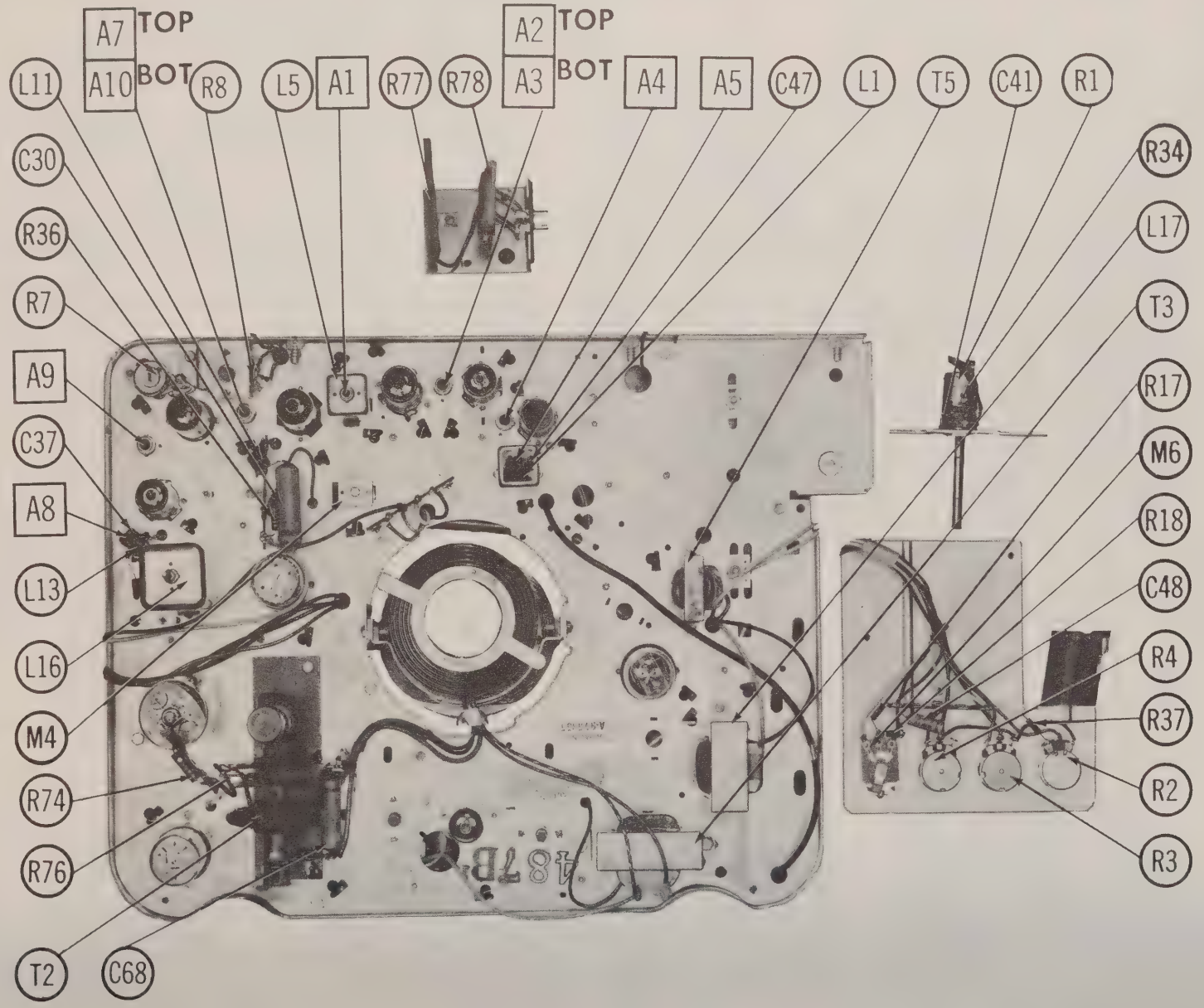
RECTIFIERS

ITEM No.	RATING	REPLACEMENT DATA						
	CURRENT (Measured)	CROSLEY PART No.	FEDERAL PART No.	GENERAL ELECTRIC PART No.	INTERNATIONAL PART No.	MALLORY PART No.	RADIO RECEPTOR PART No.	SARKES TARZIAN PART No.
M1	.200ADC	155575-2 ①	1236A ①	1N1005 ②	MR300①	6S300 ①	6Q4 ①	300 ①
M2	.200ADC	155575-2 ①	1236A ①	1N1005 ②	MR300①	6S300①	6Q4 ①	300 ①

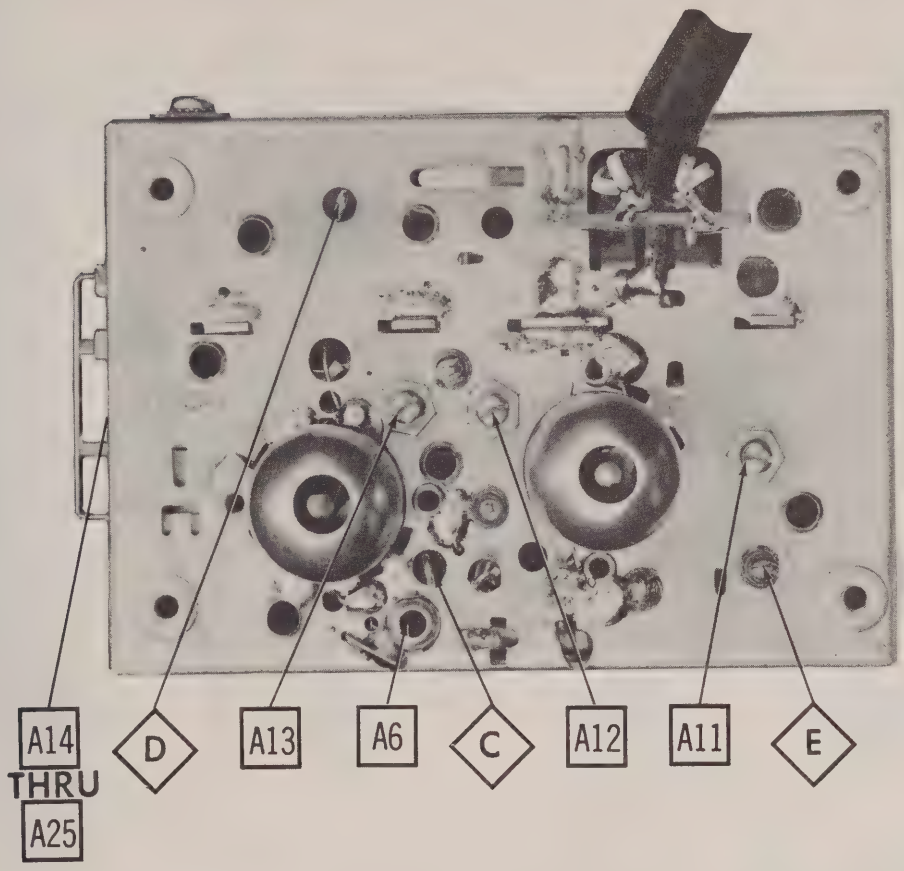
① Selenium type. ② Germanium type.

MISCELLANEOUS

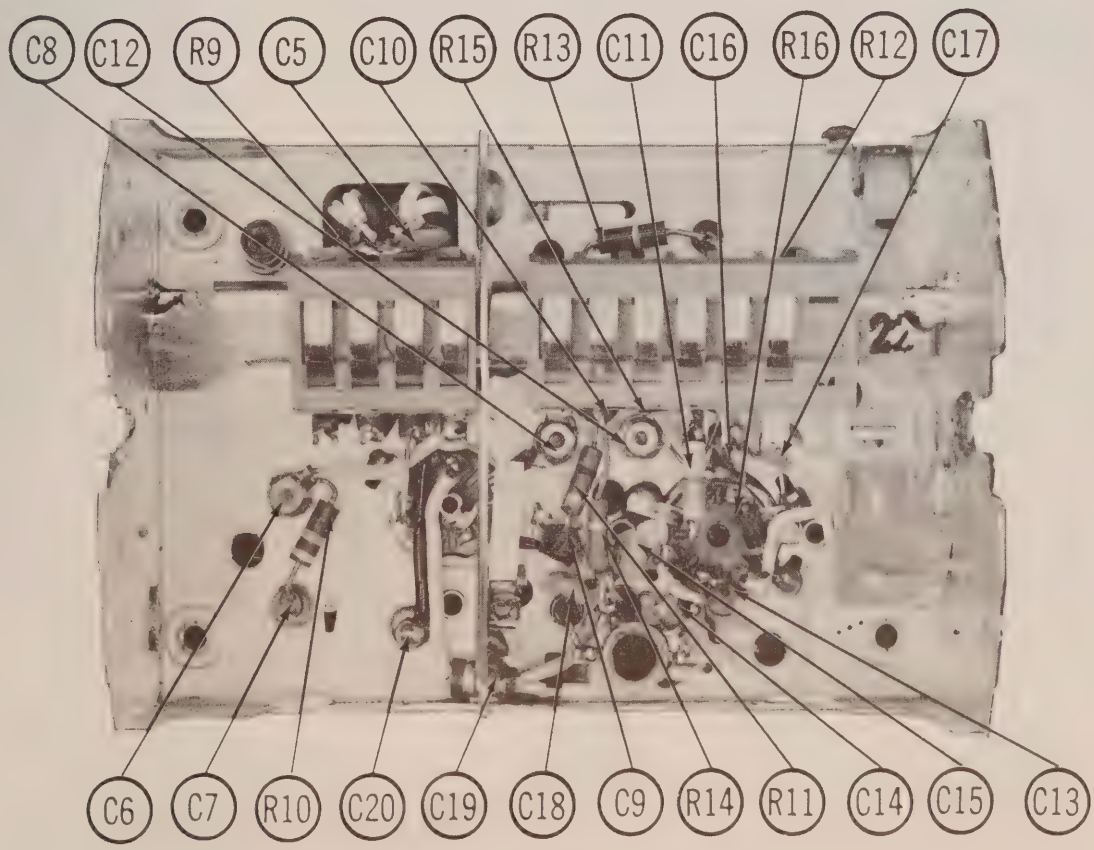
ITEM No.	PART NAME	CROSLEY PART No.	NOTES
M3	Tuner	171765-1	VHF, Used in Ch. 487
	Tuner	171804-1	UHF-VHF - Used in Ch. 488
M4	Trimmer Cap.	157870-1	Horiz. Lock, mica (10-160MMF)
M5	Trimmer Cap.	159882-1	Horiz. Drive, mica (100-400MMF)
M6	Switch	171713-1	Local-normal, wafer type, 2 position
M7	Centering Device	153586-1	Includes yoke cover
M8	Ion trap	153109-2	
	Safety Glass	171562-1	All models
	Mask	171662-1	All models



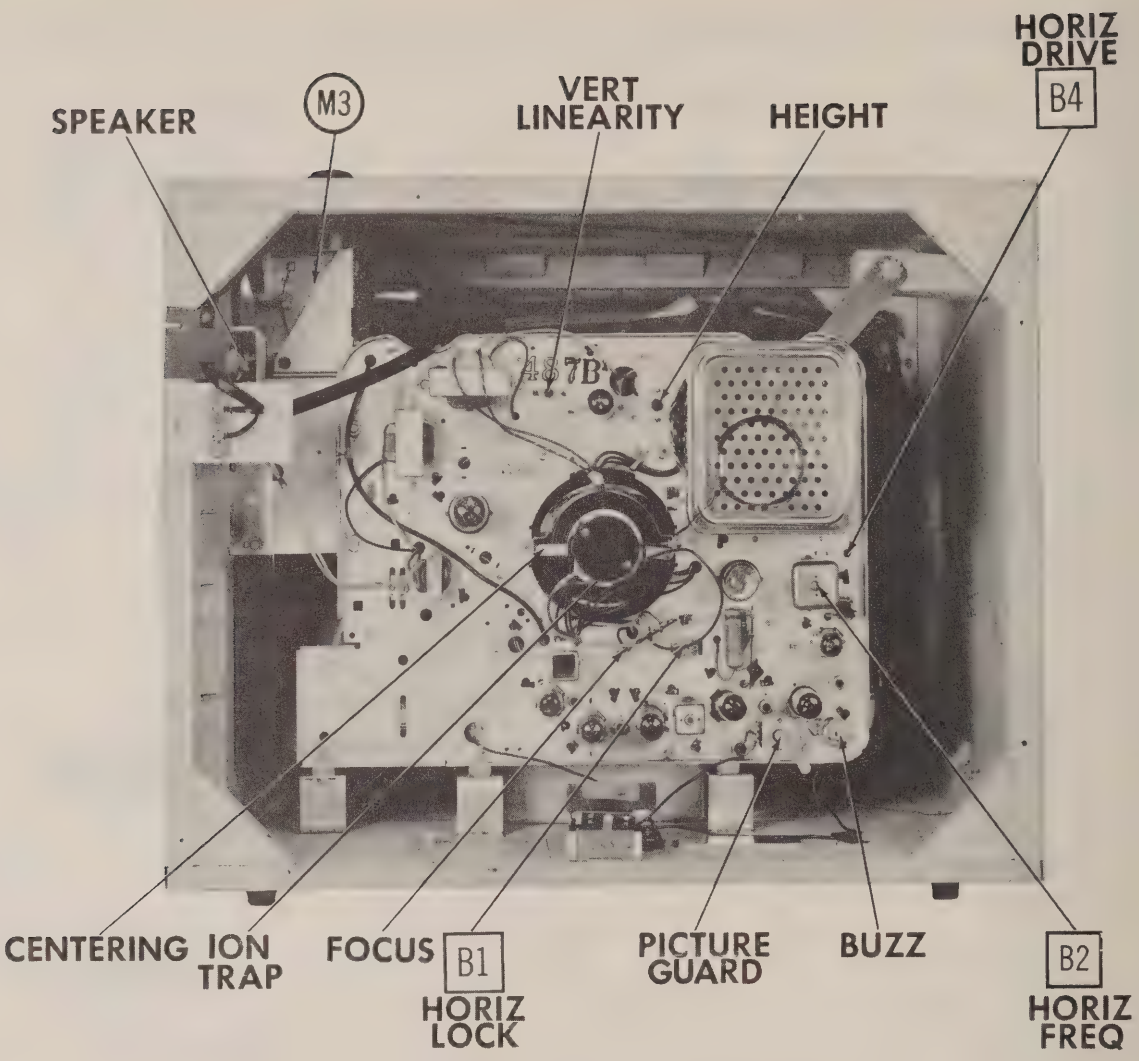
CHASSIS TOP VIEW



TUNER-TOP VIEW



TUNER-BOTTOM VIEW



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Tune in a TV station and adjust for normal picture.

1. Set horizontal hold control to its mid-range position and preset the horizontal lock trimmer (B1) one-half turn from full tight. Adjust the horizontal frequency slug (B2) until the picture synchronizes horizontally.

2. Connect the vertical amplifier of the scope thru 10MMF to point (F). Low side to chassis. Adjust the waveform slug (B3) to obtain waveform similar to Fig. 5. Adjust so that the narrow peak is equal or 10% higher than the broad peak. Keep the picture in sync with the horizontal hold or B2.

3. Turn the horizontal hold control fully counter clockwise. Adjust B2 by turning counter clockwise until the picture just loses sync. Then turn the slug slowly in until the picture is just ready to fall into sync.

4. Turn the horizontal hold control until the picture falls out of sync. (If the picture does not fall out of sync, turn the channel selector off station and back again). Turn the horizontal hold control slowly counter clockwise until the picture just fall into sync, noting the number of diagonal bars present just before the picture falls into sync. If more than three bars are present just before the picture syncs, adjust B1 slightly clockwise. If less than two bars are present, adjust B1 slightly counter clockwise. Recheck number of bars and repeat adjustment of B1 until two or three bars are present. Recheck step three and check pull-in range, which should be approximately 80 degrees rotation of horizontal hold control.

5. Set the horizontal hold control so that the receiver will return completely in sync when the channel selector is switched off station and back again.

6. Adjust the drive trimmer (B4) for the widest picture without compression or vertical white drive lines near the center of the picture.

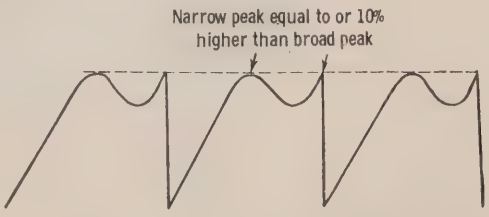


FIG. 5

ELECTRO-VOICE MODEL PC2

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

ELECTRO-VOICE
MODEL PC2

ELECTRO-VOICE
MODEL PC2

TRADE NAME	Electro-Voice Model PC2
MANUFACTURER	Electro-Voice Inc., Buchanan, Mich.
TYPE SET	AC Operated Equalizer Preamplifier
TUBES (Three)	Types 12AX7 Phono Preamplifier, 12AX7 AF Amplifier, 6X4 Rectifier
POWER SUPPLY	105-125 Volts AC - 60 Cycles RATING .22 Amp. @ 117 Volts AC

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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PARTS LIST AND DESCRIPTIONS

ELECTRO-VOICE
MODEL PC2

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Phono Preamplifier	12AX7	
V2	AF Amplifier	12AX7	

ITEM No.	USE	TYPE	NOTES
V3	Rectifier	6X4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	Electro-Voice PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	▰20	350	42045			FP434.5		Q-030	
B	▲20	350				TC62		MT-4520	
C	■20	350							
C2	12	250	(Note 1)	PRS250V12	BBR12-250	TC53	TD-12-250	FM-2512	TVA-1505
C3	20	25	42046	PRS50V20	BBR20-25	TC26	TD-25-25	FM-0225	TVA-1205

Note 1: Not used in some versions.

FIXED CAPACITORS

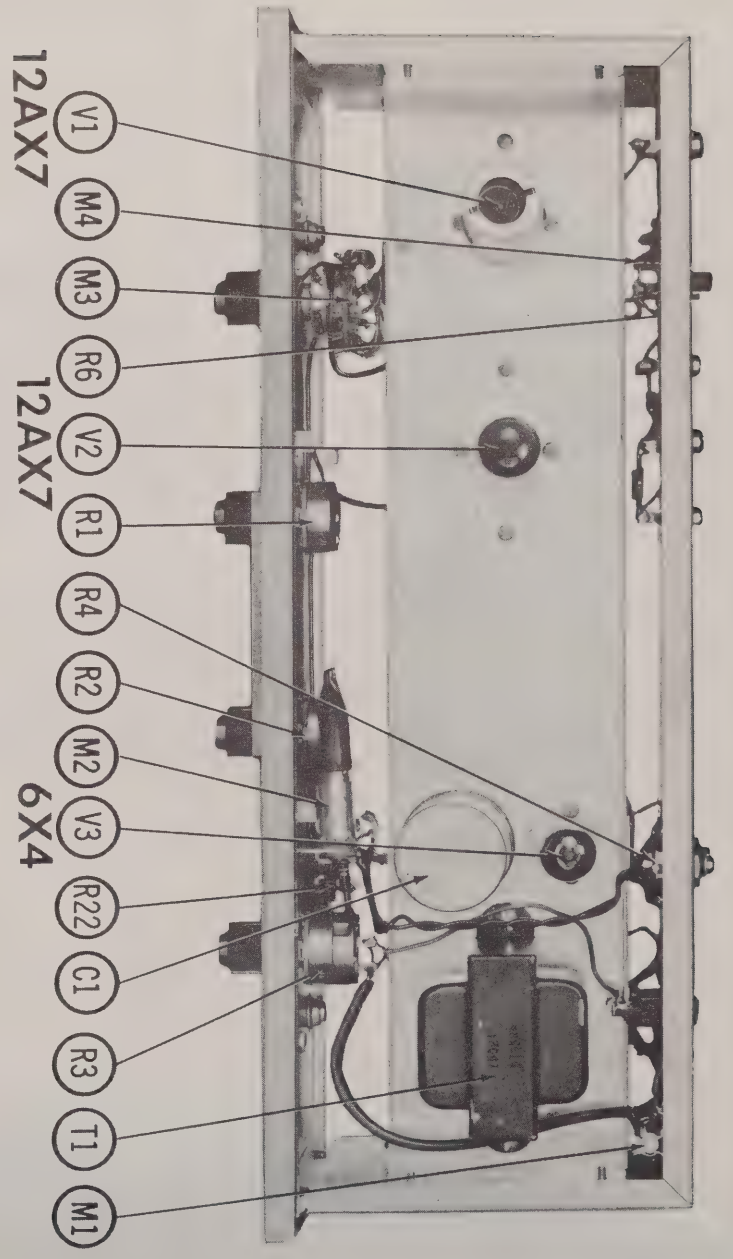
Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	Electro-Voice PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C4	10000		4252	BPD-01	DD-103	BYA6S1	GP-10000	DC511	5HK-S1	
C5	5000		42002	BPD-005	DD-502	BYA10D5	GP-5000	DC525	5HK-D5	
C6	10000		4252	BPD-01	DD-103	BYA6S1	GP-10000	DC511	5HK-S1	
C7	2000		4259	BPD-002	DD-202	BYA10D2	GP-2000	DC522	5HK-D2	
C8	10000		4252	BPD-01	DD-103	BYA6S1	GP-10000	DC511	5HK-S1	
C9	.1	400	4245	P488N-1	DF-104	CUB4P1		GEM-401	4TM-P1	
C10	500		42003	BPD-0005	DD-501	BYA10T5	ED-500	UC-535	5GA-T5	
C11	500		42003	BPD-0005	DD-501	BYA10T5	ED-500	UC-535	5GA-T5	
C12	.1	400	4245	P488N-1	DF-104	CUB4P1		GEM-401	4TM-P1	
C13	200		4256	BPD-0002	DD-201	L10T2	ED-200	UC-532	5GA-T2	
C14	2000		4259	BPD-002	DD-202	BYA10D2	GP-2000	DC522	5HK-D2	
C15	10000		4257	BPD-01	DD-103	BYA6S1	GP-10000	DC511	5HK-S1	
C16	1000		4258	BPD-001	DD-102	BYA6D2	ED-1000	DC521	5HK-D1	
C17	.1	400	4245	P488N-1	DF-104	CUB4P1		GEM-401	4TM-P1	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESIST-ANCE	WATTS	Electro-Voice PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	50K	½	A46086	B-32	A47-50K-Z	Q13-123	U33	Volume
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R2A	1Meg	½	A4686	B-70	A47-1Meg-Z	Q13-137	U53	Treble
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R3A	1Meg	½	Z4686	B-70	A47-1Meg-Z	Q13-137	U53	Bass
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
C	Switch			KB-1	SWE-12	76-1	US-26	
R4A	500Ω	1	R4686	AB-4	A47-500-S	Q11-103	U2	Hum Balance (Ceramic)
B	Shaft			AK-1	FKS-1/4	RQ	Not Req.	
R5A	500Ω	1	R4686	AB-4	A47-500-S	Q11-103	U2	Hum Balance (Magnetic)
B	Shaft			AK-1	FKS-1/4	RQ	Not Req.	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	Electro-Voice PART No.	IRC PART No.	
R6	22Meg		4606	BTS-22Meg	
R7	47K		4668	BTS-47K	
R8	120K		4670	BTS-120K	
R9	2200Ω		4676	BTS-2200	
R10	12Meg		4672	BTS-12Meg	
R11	120K		4670	BTS-120K	
R12	1.2Meg		4656	BTS-1.2Meg	
R13	120K		4670	BTS-120K	
R14	1.2Meg		4656	BTS-1.2Meg	
R15	270K		4669	BTS-270K	
R16	270K		4669	BTS-270K	
R17	1.8Meg		4673	BTS-1.8Meg	
R18	56K		4652	BTS-56K	
R19	1200Ω		4658	BTS-1200	
R20	4700Ω		4675	BTS-4700	
R21	120K		4670	BTS-120K	
R22	12K		4649	BTS-12K	
R23	120K		4670	BTS-120K	
R24	18K		46029	BTS-18K	
R25	680Ω		46045	BTS-680	
R26	390K		46028	BTS-390K	
R27	330K		4685	BTS-330K	
R28	1.2Meg		4656	BTS-1.2Meg	
R29	47K		4668	BTS-47K	
R30	47K		4668	BTS-47K	Note 1
R31	27K		4651	BTS-27K	
R32	1.2Meg		4656	BTS-1.2Meg	Note 1
R33	120K		4670	BTS-120K	Note 1

Note 1: Not used in some versions.

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA					
	PRI.	SEC. 1	SEC. 2	SEC. 3	Electro-Voice PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117VAC ⓖ .22A	455VCT ⓖ .055A	6.3VAC ⓖ .3A	6.3VAC ⓖ 1A	15021					

FUSES

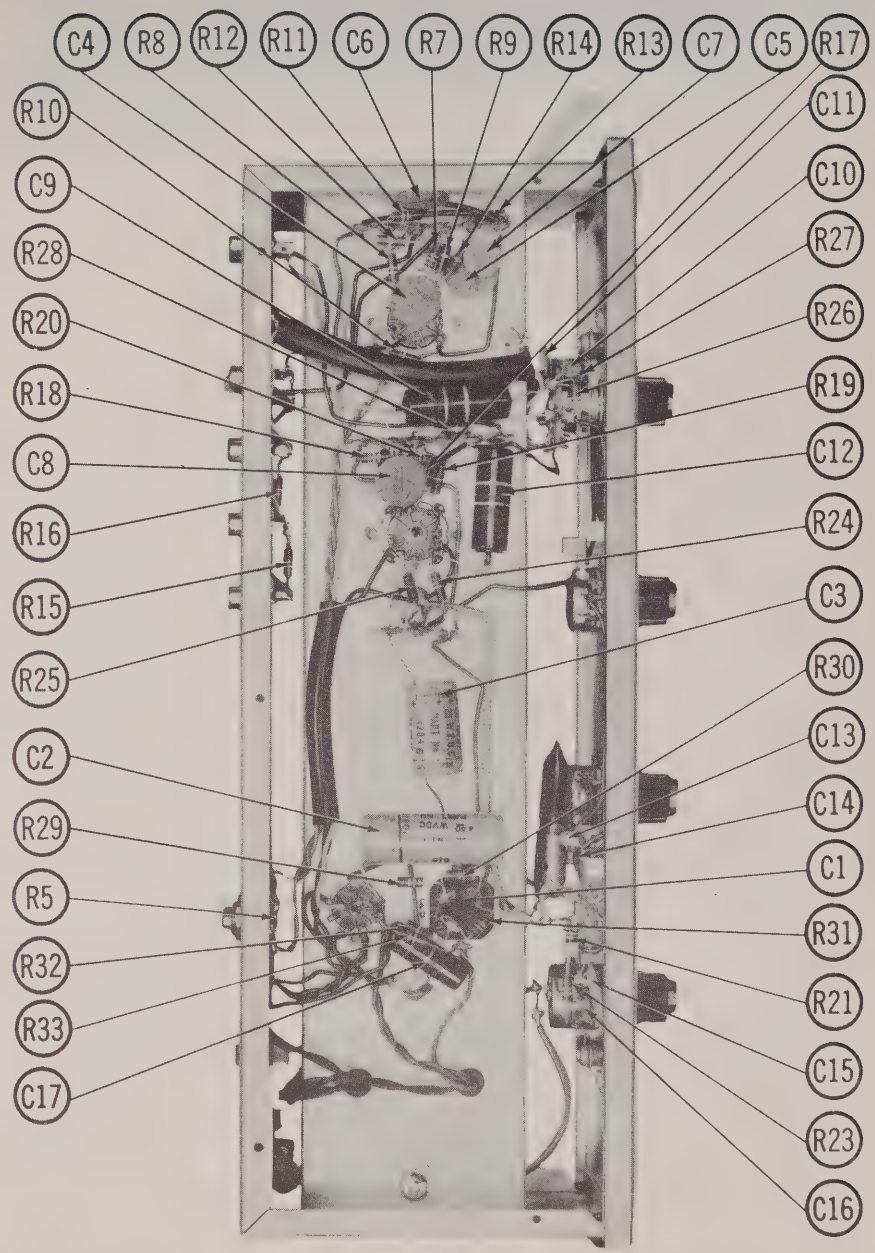
ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			Electro-Voice PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	3AG	1/2A 250V	(Note 1)		312.500 (3AG-½A-250V)	356001	AGC 1/2	4405

Note 1: Some versions may use 3AG, ½A, 250V, S/B (Part #Z-20066) in this application.

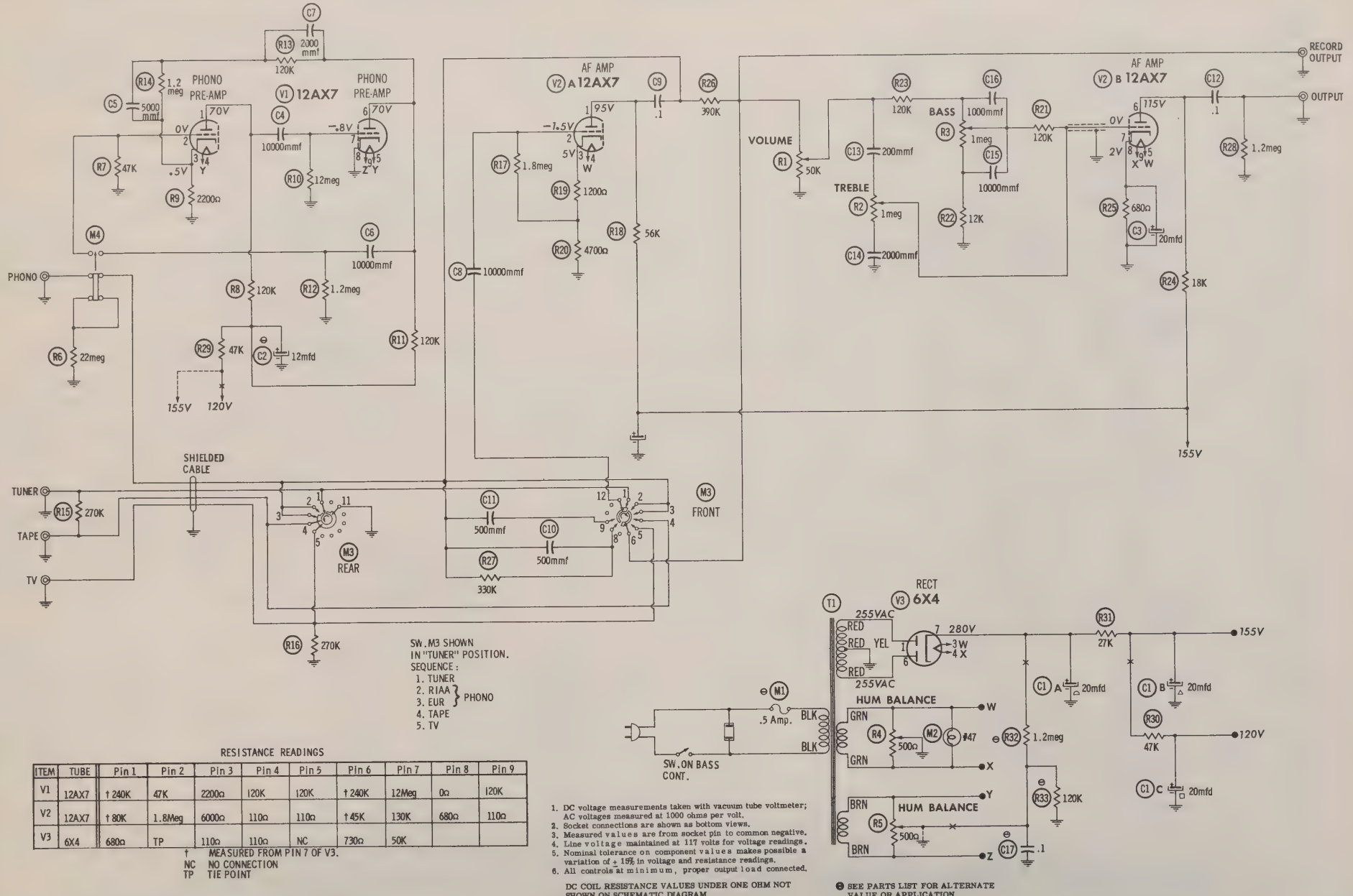
MISCELLANEOUS

ITEM No.	PART NAME	Electro-Voice PART No.	NOTES
M2	Pilot Light		#47
M3	Switch		Function (Rotary, Wafer Type)
M4	Switch		Ceramic-Magnetic Changeover

CHASSIS—BOTTOM VIEW



ELECTRO-VOICE MODEL PC2



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AX7	† 240K	47K	2200Ω	120K	120K	† 240K	12Meg	0Ω	120K
V2	12AX7	† 80K	1.8Meg	6000Ω	110Ω	110Ω	† 45K	130K	680Ω	110Ω
V3	6X4	680Ω	TP	110Ω	110Ω	NC	730Ω	50K		

† MEASURED FROM PIN 7 OF V3.
NC NO CONNECTION
TP TIE POINT

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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HARMAN-KARDON MODEL TA-10

PROPERTY OF
D. F. BLANKENSHIP
3924 [illegible]

HARMAN-KARDON
MODEL TA-10

HARMAN-KARDON
MODEL TA-10

TRADE NAME	Harman-Kardon Model TA-10	
MANUFACTURER	Harman-Kardon, Inc., 520 Main St., Westbury, L.I., N.Y.	
TYPE SET	AC Operated FM-AM Receiver	
TUBES	Twelve	
POWER SUPPLY	105-125 Volts AC-60 Cycles	RATING .78 Amp. @ 117 Volts AC
TUNING RANGE-BROADCAST	530KC-1650KC	FREQ. MOD. 88MC-108MC

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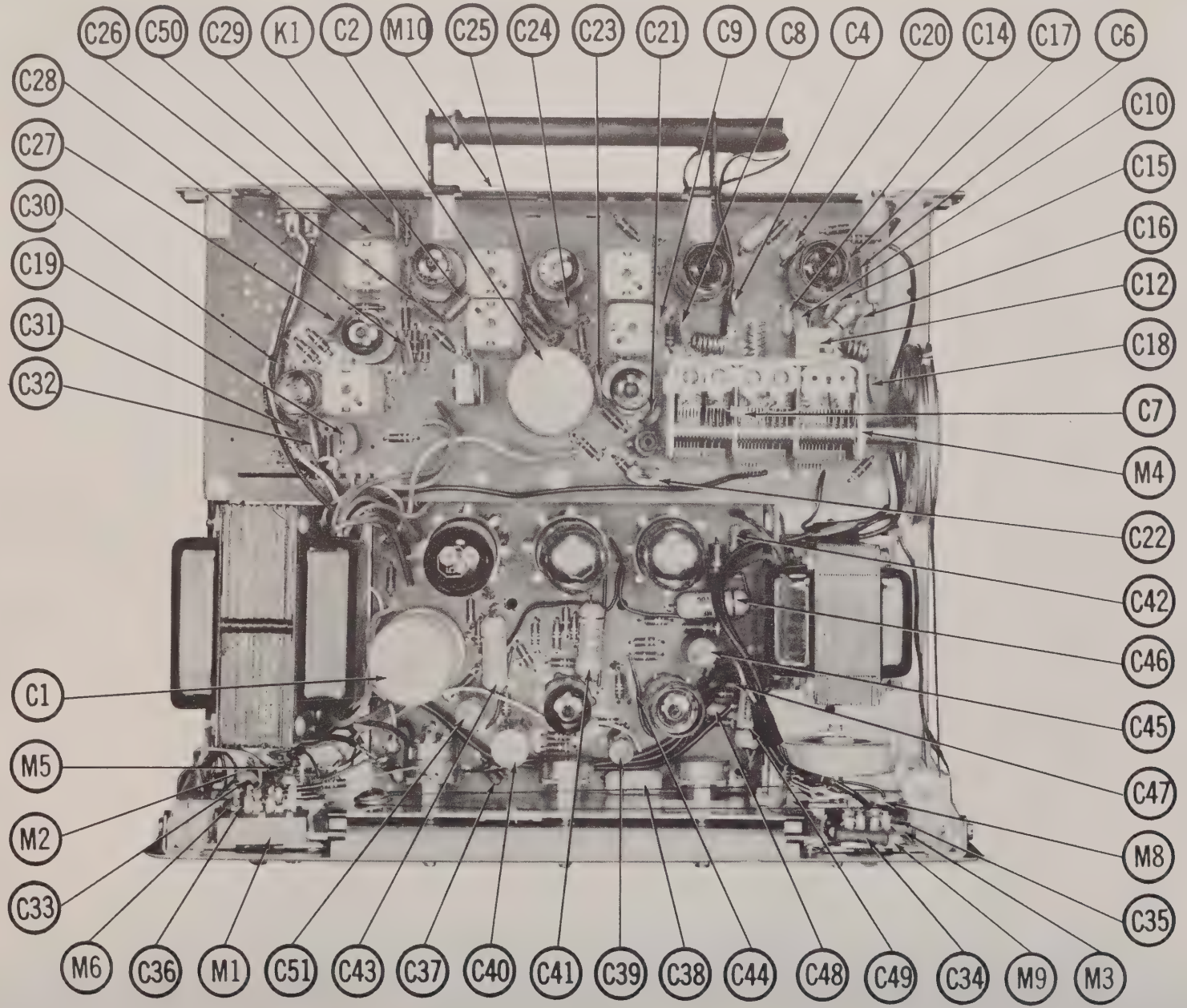

CHASSIS -CAPACITOR IDENTIFICATION

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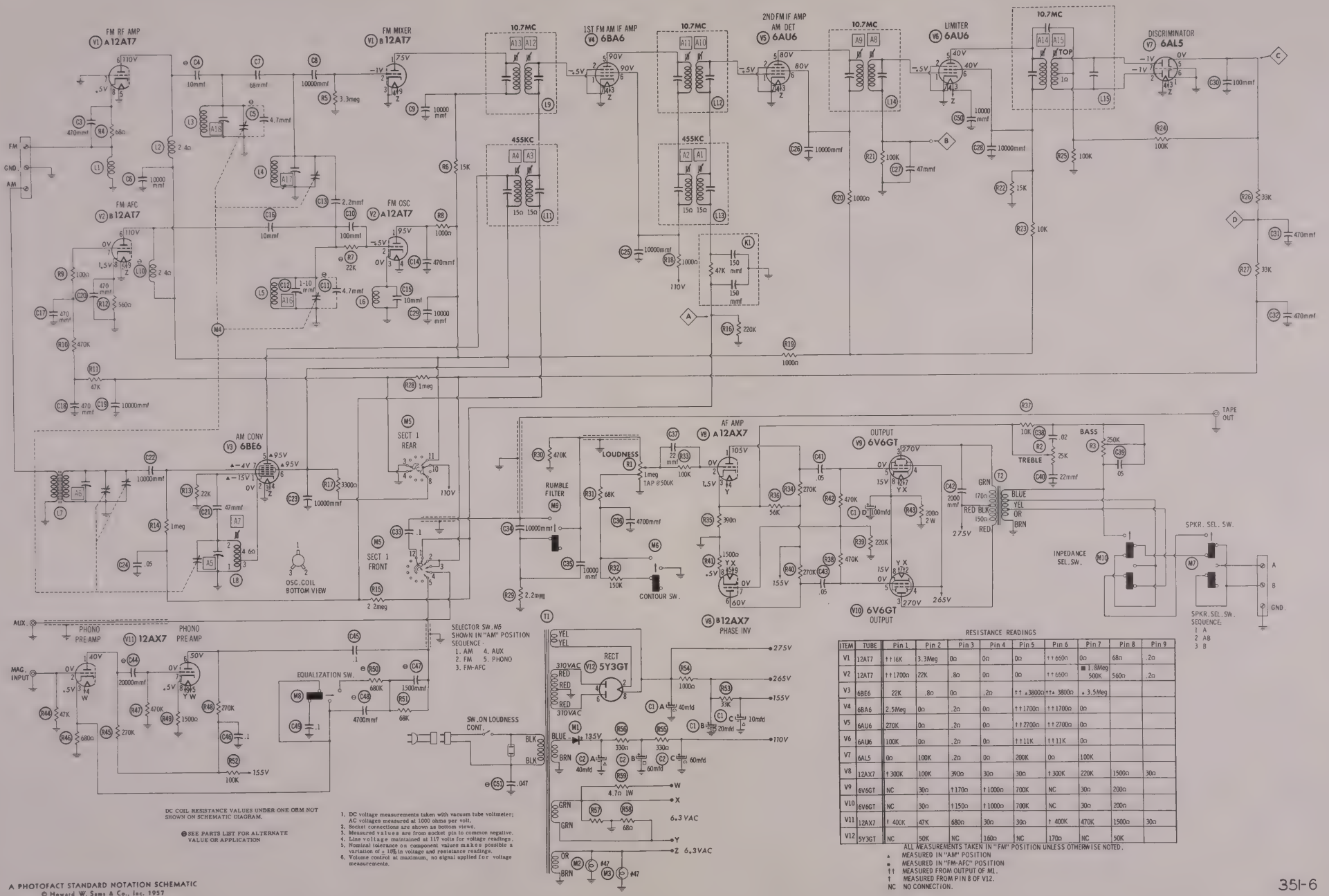
CHASSIS-RESISTOR IDENTIFICATION

HARMAN-KARDON
MODEL TA-10



ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AT7	††16K	3.3Meg	0Ω	0Ω	0Ω	††660Ω	0Ω	68Ω	.2Ω
V2	12AT7	††1700Ω	22K	.8Ω	0Ω	0Ω	††660Ω	■ 1.8Meg 500K	560Ω	.2Ω
V3	6BE6	22K	.8Ω	0Ω	.2Ω	††▲3800Ω	††▲3800Ω	▲3.5Meg		
V4	6BA6	2.5Meg	0Ω	.2Ω	0Ω	††1700Ω	††1700Ω	0Ω		
V5	6AU6	270K	0Ω	.2Ω	0Ω	††2700Ω	††2700Ω	0Ω		
V6	6AU6	100K	0Ω	.2Ω	0Ω	††11K	††11K	0Ω		
V7	6AL5	0Ω	100K	.2Ω	0Ω	200K	0Ω	100K		
V8	12AX7	†300K	100K	390Ω	30Ω	30Ω	†300K	220K	1500Ω	30Ω
V9	6V6GT	NC	30Ω	†170Ω	†1000Ω	700K	NC	30Ω	200Ω	
V10	6V6GT	NC	30Ω	†150Ω	†1000Ω	700K	NC	30Ω	200Ω	
V11	12AX7	† 400K	47K	680Ω	30Ω	30Ω	† 400K	470K	1500Ω	30Ω
V12	5Y3GT	NC	50K	NC	160Ω	NC	170Ω	NC	50K	

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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351-6

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.
Use an insulated alignment screwdriver for adjusting.
To set pointer, turn tuning capacitor fully closed and set pointer to last reference mark at low frequency end of dial.

AM ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
1.	.01MFD	High side to AM RF stator lug on tuning gang. Low side to chassis.	455KC (400∿Mod)	AM	1600KC	DC probe to point Ⓐ. Common to chassis.	A1, A2, A3, A4	Adjust for maximum deflection.
2.	Direct	High side to AM antenna terminal. Low side to chassis.	1500KC	"	1500KC	"	A5, A6	"
3.	"	"	600KC	"	600KC	"	A7	"

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
4.	.01MFD	High side to FM RF stator lug on tuning gang. Low side to chassis.	10.7MC (Unmod)	FM	Point of non-interference	DC probe to point Ⓑ. Common to chassis.	A8, A9, A10, A11, A12, A13	Adjust for maximum deflection.
5.	"	"	"	"	"	DC probe to point Ⓒ. Common to chassis.	A14	"
6.	"	"	"	"	"	DC probe to point Ⓓ. Common to chassis.	A15	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
4.	.01MFD	High side to FM RF stator lug on tuning gang. Low side to chassis.	10.7MC (450KC Swp)	FM	Point of non-interference	Vert. Amp. to point Ⓑ. Low side to chassis.	A8, A9, A10, A11, A12, A13	Adjust for curve of maximum amplitude and symmetry similar to Fig. 1.
5.	"	"	"	"	"	Vert. Amp. to point Ⓒ. Low side to chassis.	A14	"
6.	"	"	"	"	"	Vert. Amp. to point Ⓓ. Low side to chassis.	A15	Adjust so that 10.7MC occurs at center of crossover lines similar to Fig. 2. SLIGHTLY retouch A14 for maximum amplitude and straightness of crossover lines.

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
7.	270Ω Carbon Resistor	High side to FM antenna terminal. Low side to chassis.	106MC	FM	106MC	DC probe to point Ⓑ. Common to chassis.	A16, A17, A18	Adjust for maximum deflection.
8.	"	"	90MC	"	90MC	"	L3, L4, L5	Adjust for maximum deflection by compressing or expanding coil turns.

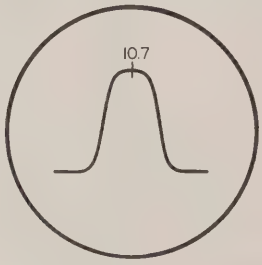


FIG. 1

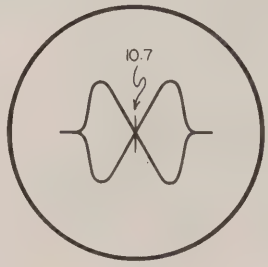


FIG. 2

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	FM RF Amp.-Mixer	12AT7	
V2	FM Osc.-AFC	12AT7	
V3	AM Converter	6BE6	
V4	1st. IF Amplifier	6BA6	
V5	2nd. FM IF Amp.-AM Det.	6AU6	
V6	Limiter	6AU6	

ITEM No.	USE	TYPE	NOTES
V7	Discriminator	6AL5	
V8	AF Amp.-Phase Inv.	12AX7	
V9	Output	6V6GT	
V10	Output	6V6GT	
V11	Phono Preamplifier	12AX7	
V12	Rectifier	5Y3GT	

ELECTROLYTIC CAPACITORS

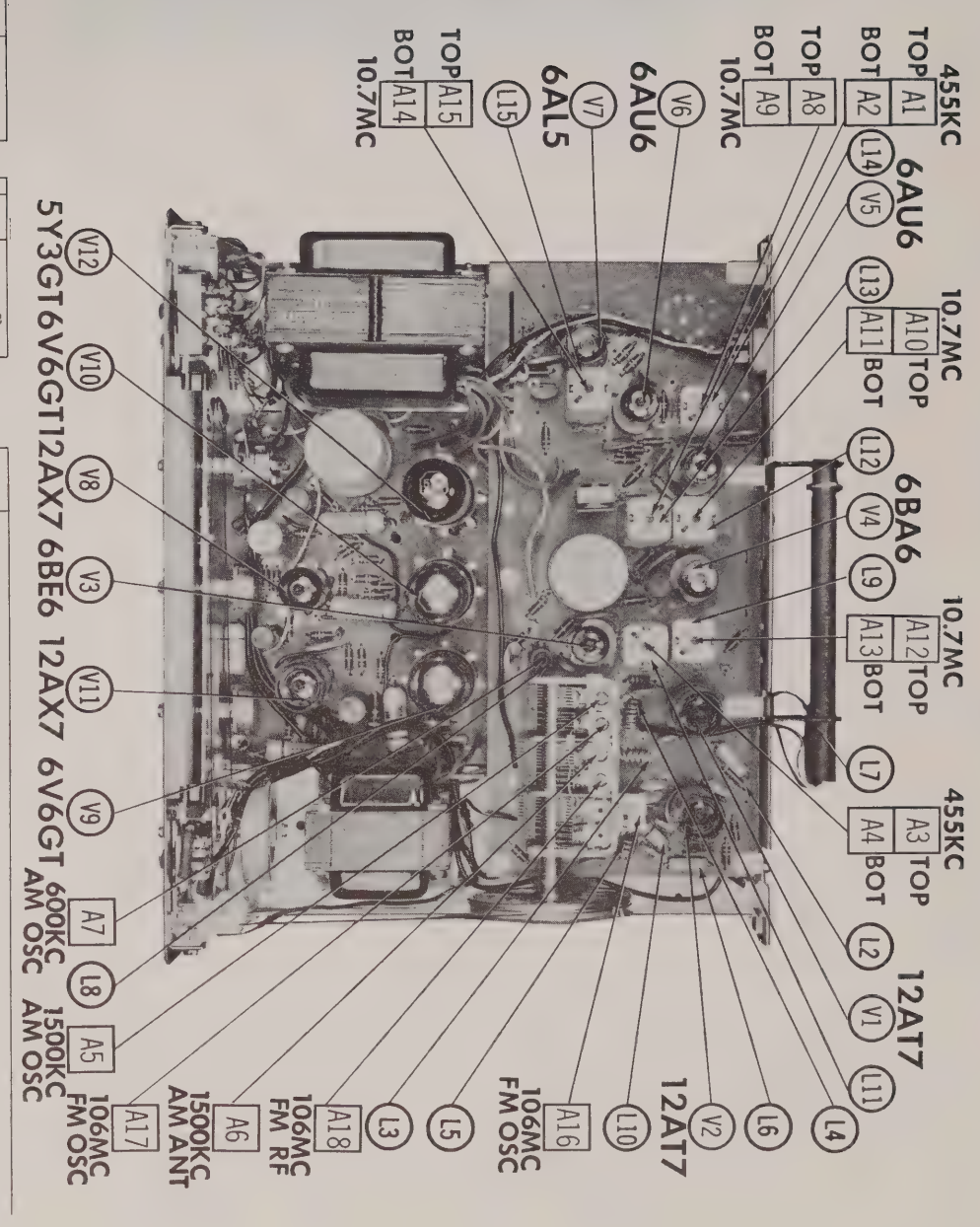
ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA Harman-Kardon PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	▲40	350	JE621281D			FP343.6		T-535	
B	■20	350				TC3501		MT-4520	
C	▲10	350							
D	100	50							
C2A	▲40	150	JE781436C	AFH4-35		FP217.87			TVL-3443.2
B	■60	150				TCD2302			
C	▲60	150							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA Harman-Kardon PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C3	470			BPD-00047	DD-471	BYAI0T47	ED-470	UC-5347	5GA-T47	
C4	10			N750-SI 10	TCN-10	C10Q1U	TC7-10	NT-541	5TCU-Q1	Note 1
C5	4.7									
C6	10000			BPD-01	DD-103	BYA6S1	GP-10000	DC511	5HK-S1	
C7	.68				TCZ-R68					Note 2
C8	10000			BPD-01	DD-103	BYA6S1	GP-10000	DC511	5HK-S1	
C9	10000			BPD-01	DD-103	BYA6S1	GP-10000	DC511	5HK-S1	
C10	100			N750-SI 100	TCN-100	C10T1U	TC7-100	NT-531	5TCU-T1	
C11	4.7									Note 2
C12	1-10									
C13	2.2			NP0-SI 2.2	TCZ-2R2	C10V22C	TCO-2.2		5TCCB-V22	
C14	470			BPD-00047	DD-471	BYAI0T47	ED-470	UC-5347	5GA-T47	
C15	10			N750-SI 10	TCN-10	C10Q1U	TC7-10	NT-541	5TCU-Q1	
C16	10			N750-SI 10	TCN-10	C10Q1U	TC7-10	NT-541	5TCU-Q1	
C17	470			BPD-00047	DD-471	BYAI0T47	ED-470	UC-5347	5GA-T47	
C18	470			BPD-00047	DD-471	BYAI0T47	ED-470	UC-5347	5GA-T47	
C19	10000			BPD-01	DD-103	BYA6S1	GP-10000	DC511	5HK-S1	
C20	470			BPD-00047	DD-471	BYAI0T47	ED-470	UC-5347	5GA-T47	
C21	47			N750-SI 47	TCN-47	C10Q47U	TC7-47	NT-5447	5TCU-Q47	
C22	10000			BPD-01	DD-103	BYA6S1	GP-10000	DC511	5HK-S1	
C23	10000			BPD-01	DD-103	BYA6S1	GP-10000	DC511	5HK-S1	
C24	.05	200		BPD-05	DF-503	BC2S47J			2SE-S47	
C25	10000			BPD-01	DD-103	BYA6S1	GP-10000	DC511	5HK-S1	
C26	10000			BPD-01	DD-103	BYA6S1	GP-10000	DC511	5HK-S1	
C27	47			N750-SI 47	TCN-47	C10Q47U	TC7-47	NT-5447	5TCU-Q47	
C28	10000			BPD-01	DD-103	BYA6S1	GP-10000	DC511	5HK-S1	
C29	10000			BPD-01	DD-103	BYA6S1	GP-10000	DC511	5HK-S1	
C30	100			N750-SI 100	TCN-100	C10T1U	TC7-100	NT-531	5TCU-T1	
C31	470			BPD-00047	DD-471	BYAI0T47	ED-470	UC-5347	5GA-T47	
C32	470			BPD-00047	DD-471	BYAI0T47	ED-470	UC-5347	5GA-T47	
C33	.1	200		P288N-1	DF-104	CUB2P1		GEM-201	2TM-P1	
C34	10000			BPD-01	DD-103	BYA6S1	GP-10000	DC511	5HK-S1	
C35	10000			BPD-01	DD-103	BYA6S1	GP-10000	DC511	5HK-S1	
C36	4700			BPD-0047	DD-472	BYAI0D47	GP-4700	UC-5247	5HK-D47	
C37	22			BPD-000022	DD-220	LI0Q22	ED-22	UC-5422	5GA-Q22	
C38	.02	200		BPD-02	DF-203	CUB2S2	ED-02	GEM-212	2TM-S2	
C39	.05	200		BPD-05	DF-503	BC2S47J			2SE-S47	
C40	.22	200				BC2P22J			2SE-P22	
C41	.05	400		BPD-05	DF-503	CUB4S5		GEM-415	4TM-S5	
C42	2000			BPD-002	DD-202	BYAI0D2	GP-2000	DC522	5HK-D2	
C43	.05	400		BPD-05	DF-503	CUB4S5		GEM-415	4TM-S5	
C44	20000			BPD-02	DD-203	BYA6S2	ED-02		5HK-S2	Note 3
C45	.1	200		P288N-1	DF-104	BC2PLJ		GEM-201	2SE-P1	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

CAPACITORS (cont)

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA Harman-Kardon PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C46	.1	200		P288N-1	DF-104	CUB2P1		GEM-201	2TM-P1	
C47	1500			BPD-0015	DD-152	BYA10D15	ED-1500	UC-5215	5HK-D15	Note 4
C48	4700			BPD-0047	DD-472	BYA10D47	GP-4700	UC-5247	5HK-D47	Note 5
C49	.1	200		P288N-1	DF-104	CUB2P1		GEM-201	2TM-P1	
C50	10000			BPD-01	DD-103	BYA6S1	GP-10000	DC511	5HK-S1	
C51	.047	600		BPD-05	DF-503	BC6S47J			6SE-S47	Note 2

Note 1. Some versions use 47MMF in this application.
Note 2. Not used in some versions.
Note 3. Some versions use 10000MMF in this application.
Note 4. Some versions use 1000MMF in this application.
Note 5. Some versions use 270MMF in this application.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA Harman-Kardon PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A B	1Meg Switch	1/2	RV901583A					Loudness - Tap ⓐ 500K
R2	25K	1/2	RV901581A					Treble
R3	250K	1/2	RV901582A					Bass

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA Harman-Kardon PART No.	REPLACEMENT DATA IRC PART No.	NOTES
R4	68Ω			BTS-68	
R5	3.3Meg			BTS-3.3Meg	
R6	15K			BTS-15K	
R7	22K			BTS-22K	Note 1
R8	1000Ω			BTS-1000	
R9	100Ω			BTS-100	
R10	470K			BTS-470K	
R11	47K			BTS-47K	
R12	560Ω			BTS-560	
R13	22K			BTS-22K	
R14	1Meg			BTS-1Meg	
R15	2.2Meg			BTS-2.2Meg	
R16	220K			BTS-220K	
R17	3300Ω			BTS-3300	
R18	1000Ω			BTS-1000	
R19	1000Ω			BTS-1000	
R20	1000Ω			BTS-1000	
R21	100K			BTS-100K	
R22	15K			BTS-15K	
R23	10K			BTS-10K	
R24	100K			BTS-100K	
R25	100K			BTS-100K	
R26	33K			BTS-33K	
R27	33K			BTS-33K	
R28	1Meg			BTS-1Meg	
R29	2.2Meg			BTS-2.2Meg	
R30	470K			BTS-470K	
R31	68K			BTS-68K	

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA Harman-Kardon PART No.	REPLACEMENT DATA IRC PART No.	NOTES
R32	150K			BTS-150K	
R33	100K			BTS-100K	
R34	270K			BTS-270K	
R35	390Ω			BTS-390	
R36	56K			BTS-56K	
R37	10K			BTS-10K	
R38	470K			BTS-470K	
R39	220K			BTS-220K	
R40	270K			BTS-270K	
R41	1500Ω			BTS-1500	
R42	470K			BTS-470K	
R43	200Ω 5%	2		BTB-200	
R44	47K			BTS-47K	
R45	270K			BTS-270K	
R46	680Ω			BTS-680	
R47	470K			BTS-470K	
R48	270K			BTS-270K	
R49	1500Ω			BTS-1500	
R50	680K			BTS-680K	Note 2
R51	68K			BTS-68K	
R52	100K			BTS-100K	
R53	33K			BTS-33K	
R54	1000Ω			BTS-1000	
R55	330Ω			BTS-330	
R56	330Ω			BTS-330	
R57	68Ω			BTS-68	
R58	68Ω			BTS-68	
R59	4.7Ω	1			

Note 1. 10K used in some versions.
Note 2. 68K used in some versions.

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	RATING SEC. 3	REPLACEMENT DATA Harman-Kardon PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117VAC ⓐ .78A	126VAC ⓐ .039A tap ⓐ 6.3V ⓐ 2.35A	595VCT ⓐ .083A	5VAC ⓐ 2A SEC. 4 6.3VAC ⓐ 1.55A	FT901572A					

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA Harman-Kardon PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	7400Ω	16Ω tap ⓐ 8Ω, 4Ω	FT901645A	Z1405 ①			22S66 ②	S-24A ① ③	① Tape 500Ω tap. ② Tape 250Ω, 500Ω taps. ③ Drill new mounting holes.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA Harman-Kardon PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	NOTES
L1	FM Ant. Coil					.24 Microhenry, IRC part #CLA
L2	RF Choke				4608	3.3 Microhenries, IRC part #CLA
L3	FM RF Coil	GL781543				
L4	FM Mixer Coil	GL781543				
L5	FM Osc. Coil	GL781544				
L6	RF Choke		19-1000		4602	1 Microhenry, IRC part #CLA Note 1
L7	Loop Stick	GL781479A				
L8	AM Osc. Coil					
L9	1st. FM IF	GT781491A				
L10	RF Choke				4608	3.3 Microhenries, IRC part #CLA - Note 2
L11	1st. AM IF	GT781493A	16-6780	BC-356	13-PC1	
L12	2nd. FM IF	GT781570A				
L13	2nd. AM IF	GT781493A	16-6780	BC-357	13-PC2	
L14	FM Limiter	GT781570A				
L15	Discriminator	GT781492A	17-3491			

Note 1. Loop stick includes tuning ring, part #P481329A.
Note 2. Some versions may use 1 microhenry.

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	Harman-Kardon PART No.	REPLACEMENT DATA	
K1	AM Det. RF Filter	47K, 150MMF, 150MMF	PC781599	Aerovox Centralab Cornell-Dubilier Sprague	PA-98 PC-51 111TM2 D-2

SELENIUM RECTIFIER

ITEM No.	RATING CURRENT	REPLACEMENT DATA Harman-Kardon PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	MALLORY PART No.	RADIO RECEPTOR PART No.	SARKES TARZIAN PART No.	NOTES
M1	.037A	Z781490		RS065Q		8J1B	50	

MISCELLANEOUS

ITEM No.	PART NAME	Harman-Kardon PART No.	NOTES
M2	Dial Lamp		#47
M3	Dial Lamp		#47
M4	Tuning Cap.	JV781468D	6 Gang
M5	Switch	ER901598A	Selector (Rotary, wafer type)
M6	Switch		Contour, Slide type, 3 position
M7	Switch		Speaker, slide type, 3 position
M8	Switch		Equalization, slide type, 3 postion
M9	Switch		Rumble, slide type, 3 position
M10	Switch		Impedance Sel., slide type, DPDT
	Dial Glass	P901575A	
	Pointer	Z24773	

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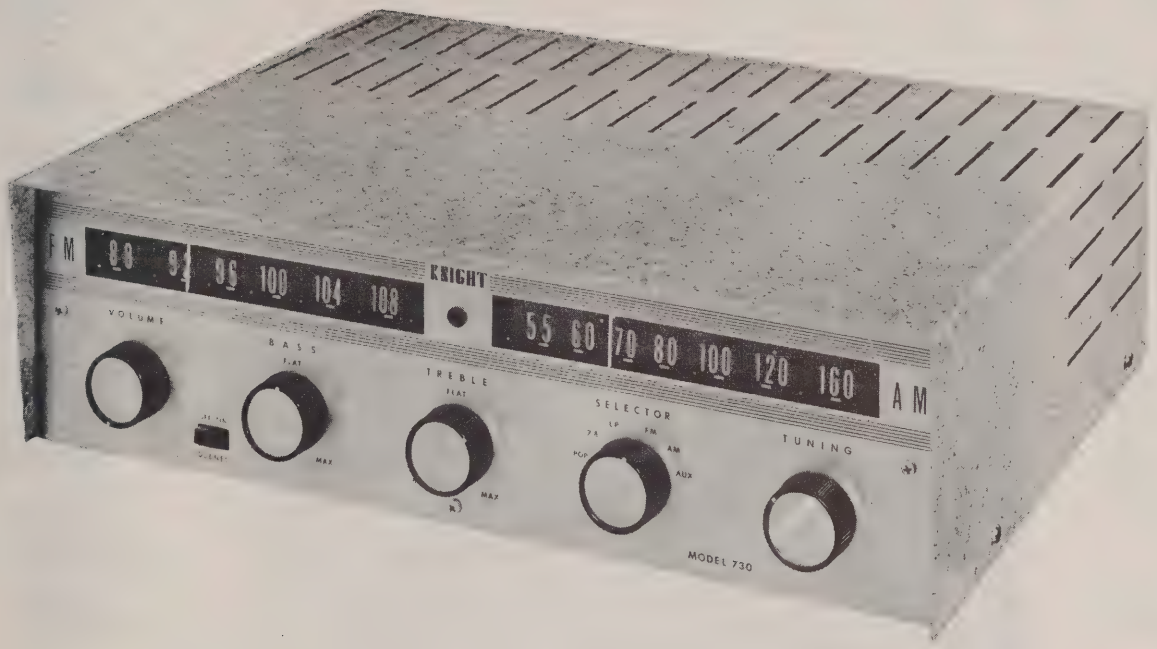
KNIGHT MODELS
94SX730, 94SZ731



KNIGHT MODELS
94SX730, 94SZ731

TRADE NAME	Knight Models 94SX730, 94SZ731	
SUPPLIER	Allied Radio Corp., 100 N. Western Ave., Chicago 80, Ill.	
TYPE SET	AC Operated FM-AM Receiver	
TUBES	Eleven	
POWER SUPPLY	105-125 Volts AC-60 Cycles	RATING .83 Amp. @ 117 Volts AC
TUNING RANGE-BROADCAST	530KC-1650KC	FREQ. MOD. 88MC-108MC

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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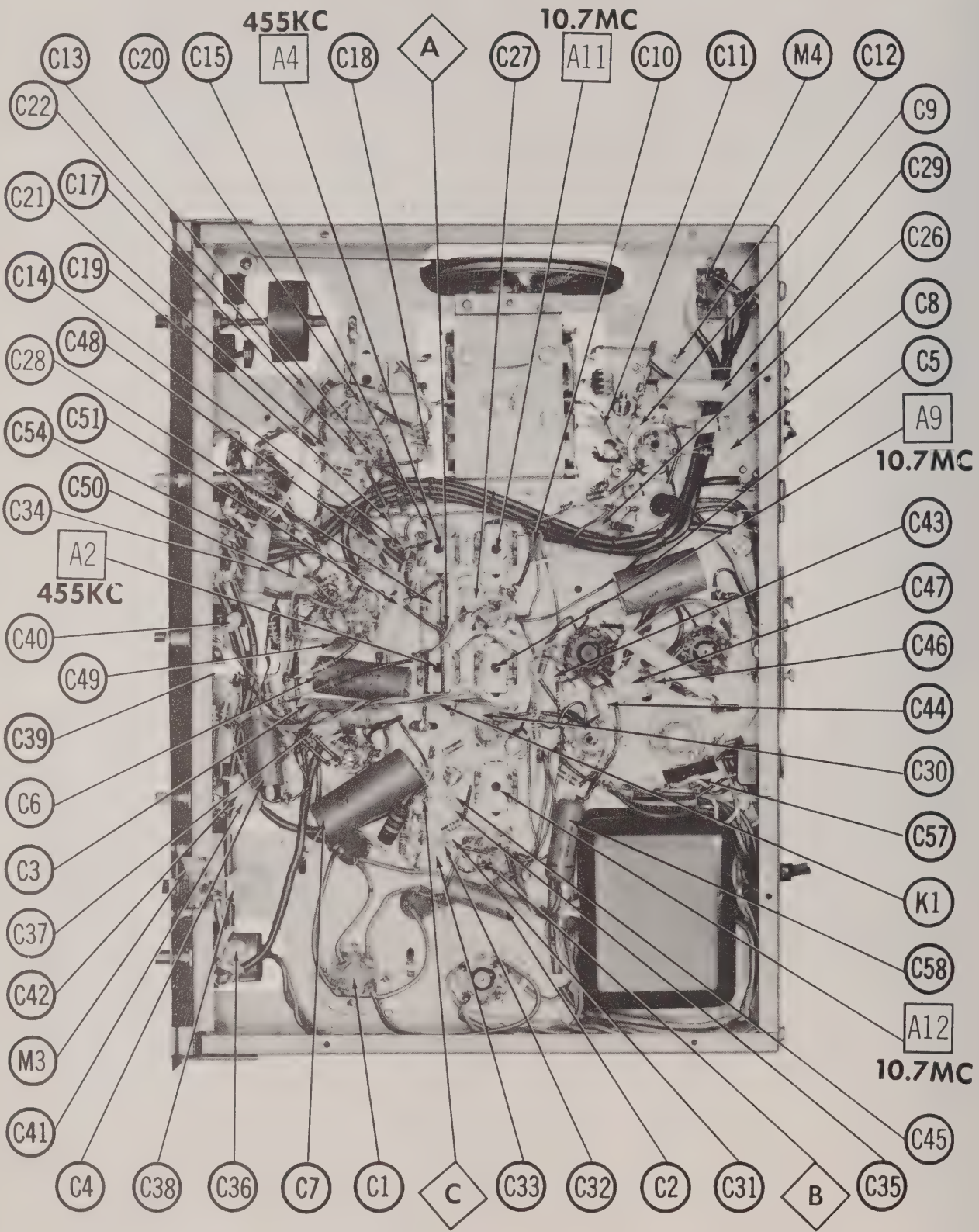

CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION

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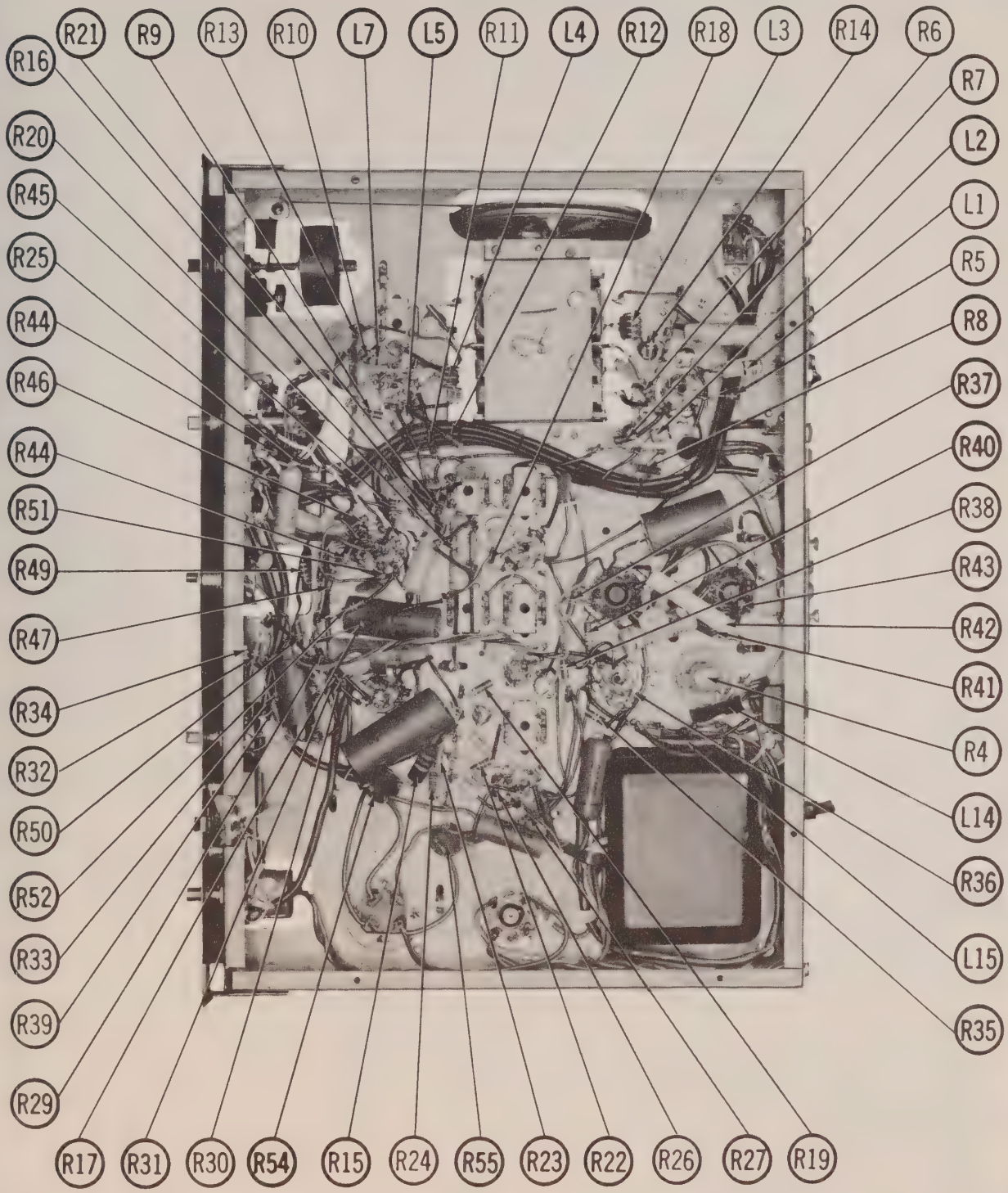
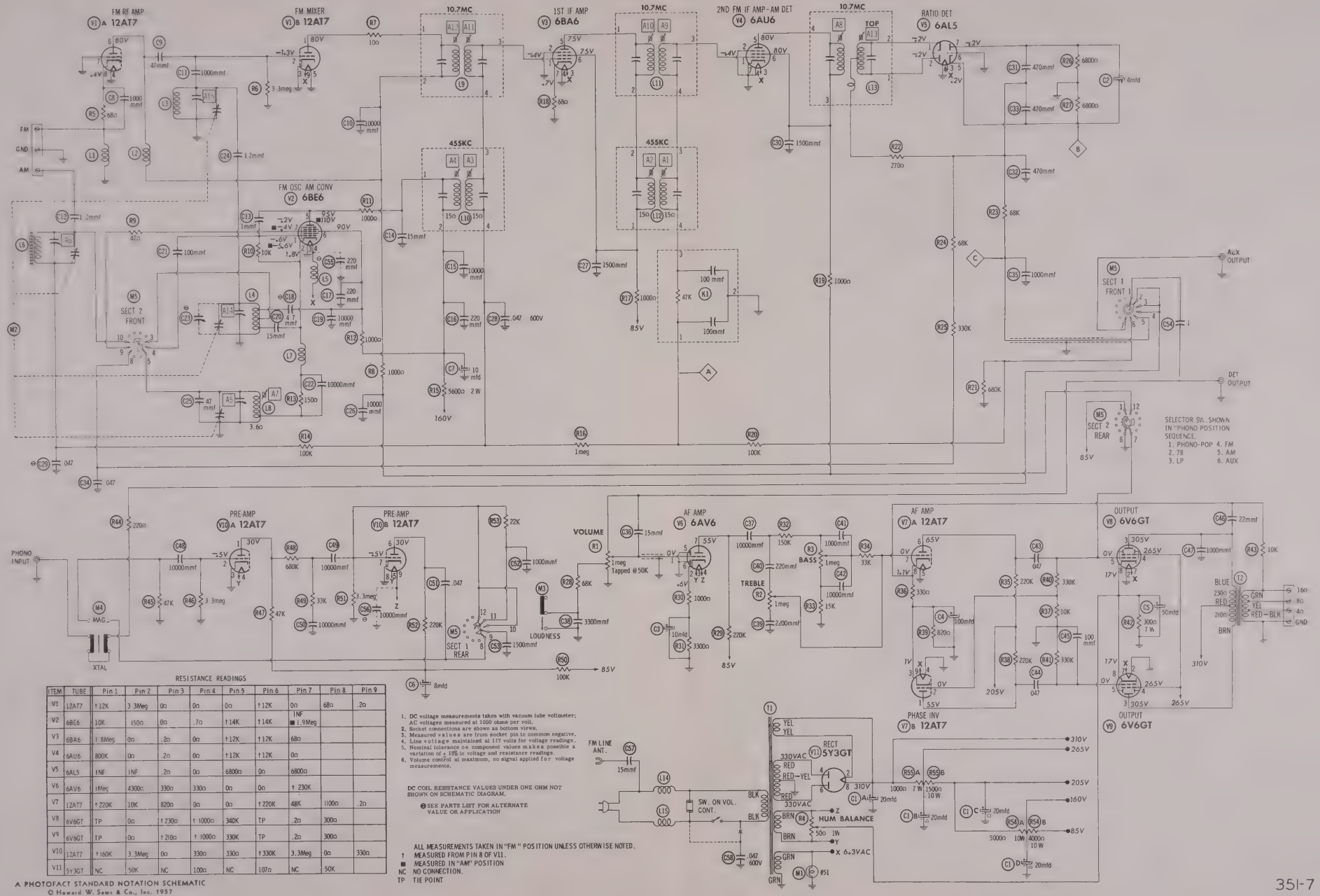


CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AT7	↑12K	3.3Meg	0Ω	0Ω	0Ω	↑12K	0Ω	68Ω	.2Ω
V2	6BE6	10K	150Ω	0Ω	.7Ω	↑14K	↑14K	INF ■ 1.9Meg		
V3	6BA6	1.8Meg	0Ω	.2Ω	0Ω	↑12K	↑12K	68Ω		
V4	6AU6	800K	0Ω	.2Ω	0Ω	↑12K	↑12K	0Ω		
V5	6AL5	INF	INF	.2Ω	0Ω	6800Ω	0Ω	6800Ω		
V6	6AV6	1Meg	4300Ω	330Ω	330Ω	0Ω	0Ω	↑ 230K		
V7	12AT7	↑220K	10K	820Ω	0Ω	0Ω	↑220K	48K	1100Ω	.2Ω
V8	6V6GT	TP	0Ω	↑230Ω	↑1000Ω	340K	TP	.2Ω	300Ω	
V9	6V6GT	TP	0Ω	↑210Ω	↑1000Ω	330K	TP	.2Ω	300Ω	
V10	12AT7	↑160K	3.3Meg	0Ω	330Ω	330Ω	↑330K	3.3Meg	0Ω	330Ω
V11	5Y3GT	NC	50K	NC	100Ω	NC	107Ω	NC	50K	

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.

❶ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

ALL MEASUREMENTS TAKEN IN "FM" POSITION UNLESS OTHERWISE NOTED.

↑ MEASURED FROM PIN 8 OF V11.

■ MEASURED IN "AM" POSITION

NC NO CONNECTION.

TP TIE POINT

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.
Use an insulated alignment screwdriver for adjusting.
To set pointer, turn tuning capacitor fully closed and set pointer to last reference mark at low frequency end of dial.
Bass and treble controls fully clockwise.

AM ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
1.	.01MFD	High side to pin 7 (grid) of 6BE6 (V2). Low side to chassis.	455KC (400∿Mod)	AM	Tuning gang fully open	DC probe to point (A). Common to chassis.	A1, A2, A3, A4	Adjust for maximum deflection.
2.	5MMF	High side thru 5MMF to AM antenna terminal. Low side to chassis.	1500KC	"	1500KC	"	A5, A6	"
3.	"	"	600KC	"	600KC	"	A7	"

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
4.	.01MFD	High side to pin 2 (grid) of 12AT7 (V1). Low side to chassis.	10.7MC (Unmod)	FM	Point of non-interference	DC probe to point (B). Common to chassis.	A8, A9, A10, A11, A12	Adjust for maximum deflection.
5.	"	"	"	"	"	DC probe to point (C). Common to chassis.	A13	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
4.	.01MFD	High side to pin 2 (grid) of 12AT7 (V1). Low side to chassis.	10.7MC (450KC Swp)	FM	Point of non-interference	Vert. Amp. to point (B). Low side to chassis.	A8, A9, A10, A11, A12,	Disconnect stabilizing capacitor C2. Adjust for curve of maximum amplitude and symmetry similar to Fig. 1.
5.	"	"	"	"	"	Vert. Amp. to point (C). Low side to chassis.	A13	Reconnect stabilizing capacitor C2. Adjust so that 10.7MC occurs at center of crossover lines similar to Fig. 2. SLIGHTLY retouch A8 for maximum amplitude and straightness of crossover lines.

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
6.	270Ω Carbon Resistor	High side thru 270Ω to FM antenna terminal. Low side to chassis.	106MC (Unmod)	FM	106MC	DC probe to point (B). Common to chassis.	A14, A15	Adjust for maximum deflection.

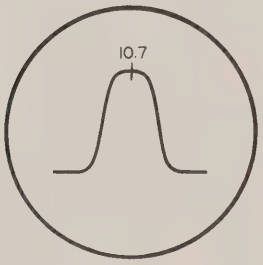


FIG. 1

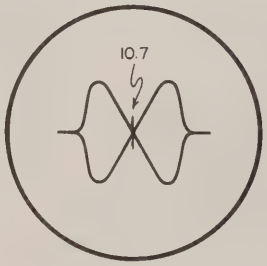


FIG. 2

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	FM RF Amp.-FM Mixer	12AT7	
V2	FM Osc.-AM Converter	6BE6	
V3	1st. IF Amplifier	6BA6	
V4	2nd. FM IF Amp.-AM Det.	6AU6	
V5	Ratio Detector	6AL5	
V6	AF Amplifier	6AV6	

ITEM No.	USE	TYPE	NOTES
V7	AF Amp.-Phase Inv.	12AT7	
V8	Output	6V6GT	
V9	Output	6V6GT	
V10	Phono Pre-amplifier	12AT7	
V11	Rectifier	5Y3GT	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA KNIGHT PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	20	350				FP376.5	TMQ-12	T-140	R2277 *
B	▲20	350				TC65		MT-4520	
C	■20	350							
D	●20	350							
C2	4	15		SRE25V5	BR550	TC30	TD-4-25	MMT-0505	TVA-1203
C3	10	25		PRS25V10	BR102	TC22	TD-10-25	FM-0210	TVA-1204
C4	100	6		PRS6V100	BBR100-6	TC2501	TD-100-6	MTH-0610	TVA-1101
C5	50	50		PRS50V50	BR505	TC39	TD-50-50	FM-0550	TVA-1308
C6	8	250		PRS250V8	BR825	TC51	TD-8-250	FM-2508	TVA-1503
C7	10	450		PRS450V10	BR1045	TC72	TD-10-450	FM-4510	TVA-1705

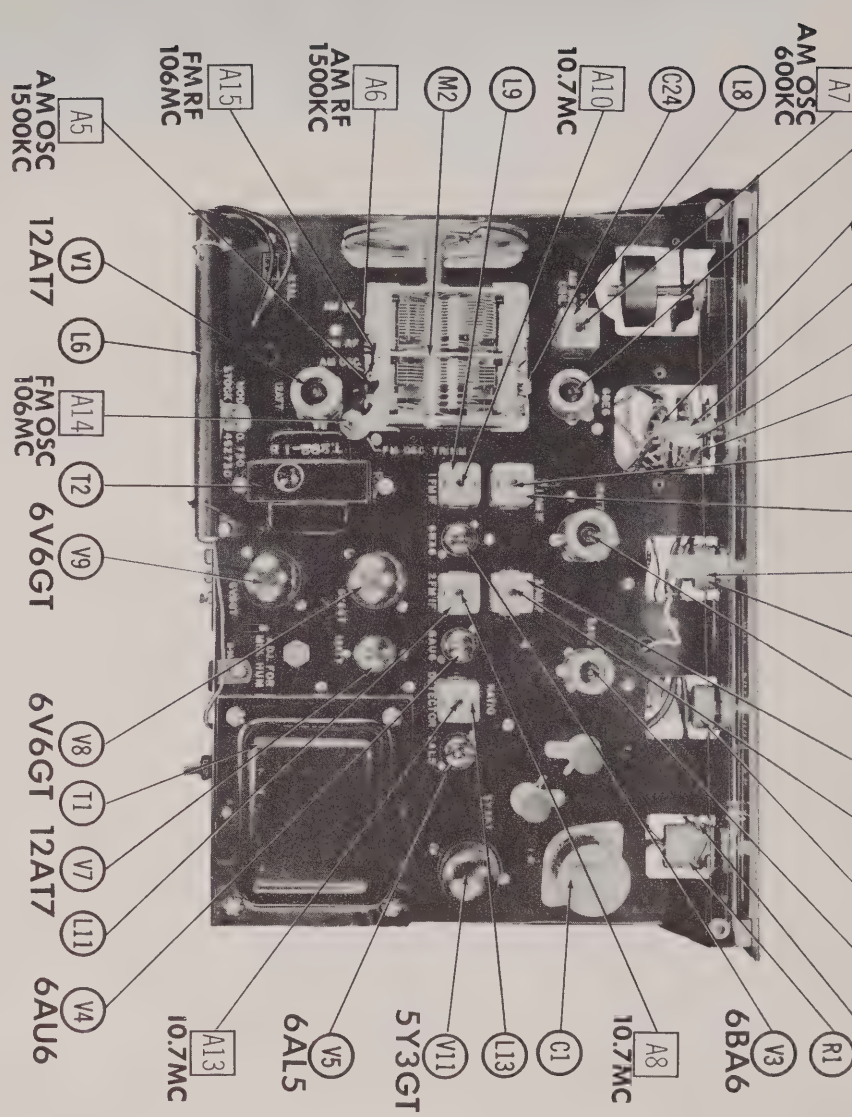
* Non-catalog item.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA KNIGHT PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C8	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C9	47			BPD-000047	DD-470	L10Q47	ED-47	UC-5447	5GA-Q47	
C10	10000			BPD-01	DD-103	BYA6S1	GP-10000	DC511	5HK-S1	
C11	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C12	1.2									
C13	1			NP0-SI 1	TCZ-1		TCO-1		5TCCB-V1	
C14	15				TCA-15		TC3-15			
C15	10000			BPD-01	DD-103	BYA6S1	GP-10000	DC511	5HK-S1	
C16	220			BPD-00022	DD-221	L10T22	ED-220	UC-5322	5GA-T22	
C17	220			BPD-00022	DD-221	L10T22	ED-220	UC-5322	5GA-T22	
C18	4.7			NP0-SI 5	TCZ-4.7	C10V5U	TCO-4.7	ZT-555	5TCC7-V47	Note 1
C19	10000			BPD-01	DD-103	BYA6S1	GP-10000	DC511	5HK-S1	
C20	15				TCA-15		TC3-15			
C21	100			BPD-0001	DD-101	L10T1	ED-100	UC-531	5GA-T1	
C22	10000			BPD-01	DD-103	BYA6S1	GP-10000	DC511	5HK-S1	
C23										
C24	1.2									
C25	47									
C26	10000			BPD-01	DD-103	BYA6S1	GP-10000	DC511	5HK-S1	
C27	1500			BPD-0015	DD-152	BYA10D15	ED-1500	DC5215	5HK-D15	
C28	.047	600		BPD-05	DF-503	CUB6S47		GEM-6147	6TM-S47	
C29	.047	200		BPD-05	DF-503	CUB2S47		GEM-2147	2TM-S47	Note 3
C30	1500			BPD-0015	DD-152	BYA10D15	ED-1500	DC5215	5HK-D15	
C31	470			BPD-00047	DD-471	BYA10T47	ED-470	UC-5347	5GA-T47	
C32	470			BPD-00047	DD-471	BYA10T47	ED-470	UC-5347	5GA-T47	
C33	470			BPD-00047	DD-471	BYA10T47	ED-470	UC-5347	5GA-T47	
C34	.047	200		BPD-05	DF-503	CUB2S47		GEM-2147	2TM-S47	
C35	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C36	15				TCA-15		TC3-15			
C37	10000			BPD-01	DD-103	BYA6S1	GP-10000	DC511	5HK-S1	
C38	3300			BPD-0033	D6-332	BYA10D33	GP-3300	UC-5233	5GA-D33	
C39	2200			BPD-0022	D6-222	BYA10D22	GP-2200	UC-5222	5GA-D22	
C40	220			BPD-00022	DD-221	L10T22	ED-220	UC-5322	5GA-T22	
C41	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C42	10000			BPD-01	DD-103	BYA6S1	GP-10000	DC511	5HK-S1	
C43	.047	600		BPD-05	DF-503	CUB6S47		GEM-6147	6TM-S47	
C44	.047	400		BPD-05	DF-503	CUB4S47		GEM-4147	4TM-S47	
C45	100			BPD-0001	DD-101	L10T1	ED-100	UC-531	5GA-T1	
C46	22			BPD-00002	D6-220	L10Q22	ED-22	UC-5422	5GA-Q22	
C47	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

CAPACITORS (cont)

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA KNIGHT PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C48	10000			BPD-01	DD-103	BYA6S1	GP-10000	DC511	5HK-S1	
C49	10000			BPD-01	DD-103	BYA6S1	GP-10000	DC511	5HK-S1	
C50	10000			BPD-01	DD-103	BYA6S1	GP-10000	DC511	5HK-S1	
C51	.047	200		BPD-05	DF-503	CUB2S47		GEM-2147	2TM-S47	
C52	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C53	1500			BPD-0015	DD-152	BYA10D15	ED-1500	DC5215	5HK-D15	
C54	.1	200		P288N-1	DF-104	CUB2P1		GEM-201	2TM-P1	
C55	220			BPD-0002	DD-221	L10T22	ED-220	UC-5322	5GA-T22	Note 2
C56	10000			BPD-01	DD-103	BYA6S1	GP-10000	DC511	5HK-S1	Note 2
C57	15				TCA-15		TC3-15			
C58	.047	600		BPD-05	DF-503	CUB6S47		GEM-6147	6TM-S47	

Note 1. Some versions may use 5MMF in this application.
Note 2. Not used in some versions.
Note 3. Some versions may use 1000MMF in this application.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA KNIGHT PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1Meg	½			A47F2-1Meg			Volume - Tap ⓐ 50K
B	Shaft				FS-3			
C	Switch				SWE-12			
R2A	1Meg	½		B-70	A47-1Meg-Z	Q13-137	U53	Treble
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R3A	1Meg	½		B-70	A47-1Meg-Z	Q13-137	U53	Bass
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R4A	50Ω	1			A43-50	WP50	R50L	Hum Adjustment-wire wound
B	Shaft				FKS-1/4	Not Req.	Not Req.	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA KNIGHT PART No.	IRC PART No.	NOTES
R5	68Ω			BTS-68	
R6	3.3Meg			BTS-3.3Meg	
R7	10Ω			BTS-10	
R8	1000Ω			BTS-1000	
R9	47Ω			BTS-47	
R10	10K			BTS-10K	
R11	1000Ω			BTS-1000	
R12	1000Ω			BTS-1000	
R13	150Ω			BTS-150	
R14	100K			BTS-100K	
R15	5600Ω	2		BTB-5600	
R16	1Meg			BTS-1Meg	
R17	1000Ω			BTS-1000	
R18	68Ω			BTS-68	
R19	1000Ω			BTS-1000	
R20	100K			BTS-100K	
R21	680K			BTS-680K	
R22	270Ω			BTS-270	
R23	68K			BTS-68K	
R24	68K			BTS-68K	
R25	330K			BTS-330K	
R26	6800Ω			BTS-6800	
R27	6800Ω			BTS-6800	
R28	68K			BTS-68K	
R29	220K			BTS-220K	
R30	1000Ω			BTS-1000	

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA KNIGHT PART No.	IRC PART No.	NOTES
R31	3300Ω			BTS-3300	
R32	150K			BTS-150K	
R33	15K			BTS-15K	
R34	33K			BTS-33K	
R35	220K			BTS-220K	
R36	330Ω			BTS-330	
R37	10K			BTS-10K	
R38	220K			BTS-220K	
R39	820Ω			BTS-820	
R40	330K			BTS-330K	
R41	330K			BTS-330K	
R42	300Ω	7		PW7-300	
R43	10K			BTS-10K	
R44	220Ω			BTS-220	
R45	47K			BTS-47K	
R46	3.3Meg			BTS-3.3Meg	
R47	47K			BTS-47K	
R48	680K			BTS-680K	
R49	33K			BTS-33K	
R50	100K			BTS-100K	
R51	3.3Meg			BTS-3.3Meg	
R52	220K			BTS-220K	
R53	22K			BTS-22K	
R54A	5000Ω	10		PW10-5000	
B	4000Ω	10		PW10-4000	
R55A	1000Ω	7		PW7-1000	
B	1500Ω	10		PW10-1500	

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	RATING SEC. 3	REPLACEMENT DATA KNIGHT PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117VAC ⓐ .83A	645VCT ⓐ .098A	5VAC ⓐ 2A	6.3VAC ⓐ 3A SEC. 4 5VAC ⓐ .63A	T-3141					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA KNIGHT PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	7600Ω CT	16Ω tap ⓐ 8Ω, 4Ω	T292-1B				26S59		

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA KNIGHT PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	NOTES
L1	FM Ant. Coil	U501	19-1000		4602	1 Microhenry, IRC part #CLA
L2	RF Choke	U501	19-1000		4602	1 Microhenry, IRC part #CLA
L3	FM RF Coil	U437				
L4	FM Osc. Coil	U438				
L5	Fil. Choke	U501	19-1000		4602	1 Microhenry, IRC part #CLA
L6	AM Loop Stick	H452				181 Microhenries
L7	Cathode Choke	U501	19-1000		4602	1 Microhenry, IRC part #CLA
L8	AM Osc. Coil	H454				122 Microhenries
L9	1st. FM IF	H294	16-3487	FM-254	1463	
L10	1st. AM IF	H386	16-6770	BC-352	12C2	
L11	2nd. FM IF	H294	16-3487	FM-254	1463	
L12	2nd. AM IF	H386	16-6770	BC-352	12C2	
L13	Ratio Det.	H387	17-3498	FM-255	1465	
L14	Line Choke	U512	19-1001	BC-502	4604	1.8 Microhenries
L15	Line Choke	U512	19-1001	BC-502	4604	1.8 Microhenries

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	KNIGHT PART No.	REPLACEMENT DATA
K1	Diode RF Filter	100MMF, 47K, 100MMF		Aerovox PA-97 Centralab PC-50 Cornell-Dubilier 11TM1 Sprague D-1

MISCELLANEOUS

ITEM No.	PART NAME	KNIGHT PART No.	NOTES
M1	Pilot Light		#51
M2	Tuning Cap.	C608	4 Gang (AM sections: 8-570MMF, 26-199MMF)
M3	Switch		Loudness, slide type (DPDT)
M4	Switch		Mag.-crystal, slide type (DPDT)
M5	Switch		Selector (Rotary, wafer type) 2 gang

RETMA MEMBER

KNIGHT MODELS 94SZ701, 94SZ709

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

KNIGHT MODELS 94SZ701, 94SZ709

KNIGHT MODELS 94SZ701, 94SZ709

TRADE NAME	Knight Models 94SZ701, 94SZ709
SUPPLIER	Allied Radio Corp., 100 N. Western Ave., Chicago 8, Illinois
TYPE SET	AC Operated 24 Watt Audio Amplifier
TUBES (Six)	Types 12AX7 (or) 12AD7 Phono-Mic. Preamp., 12AX7 1st AF Amplifier, 12AX7 2nd AF Amp. -Phase Inv., (2) 5881 Output, 5U4GB Rectifier
POWER SUPPLY	105-130 Volts AC - 50/60 Cycles RATING 1.1 Amp. @ 117 Volts AC

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Phono-Mic. Preamp.	12AX7	Note 1
V2	1st AF Amplifier	12AX7	
V3	2nd AF Amp. -Phase Inv.	12AX7	

ITEM No.	USE	TYPE	NOTES
V4	Output	5881	
V5	Output	5881	
V6	Rectifier	5U4GB	

Note 1: Type 12AD7 used in model 94SZ709.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	KNIGHT PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1	30	500			AO532	FP175	TMS-55 TD-10-500		R2344*
C2A	▲40	450		AFH4-17	DO160	FP475. 5	TMQ-17	Q-055	TVL-4771. 3
B	10	450							
C	▲10	450							
D	■10	450							
C3	8	450		PRS450V8	BR845	TC71	TD-8-450	FM-4508	TVA-1704
C4	35	50		PRS150V40	BR505	TC39	TD-50-50	FM-0550	TVA-1308
C5	35	50		PRS150V40	BR505	TC39	TD-50-50	FM-0550	TVA-1308
C6	8	450	(Note 1)	PRS450V8	BR845	TC71	TD-8-450	FM-4508	TVA-1704

Note 1: Used only in model 94SZ709.
* Non catalog item.

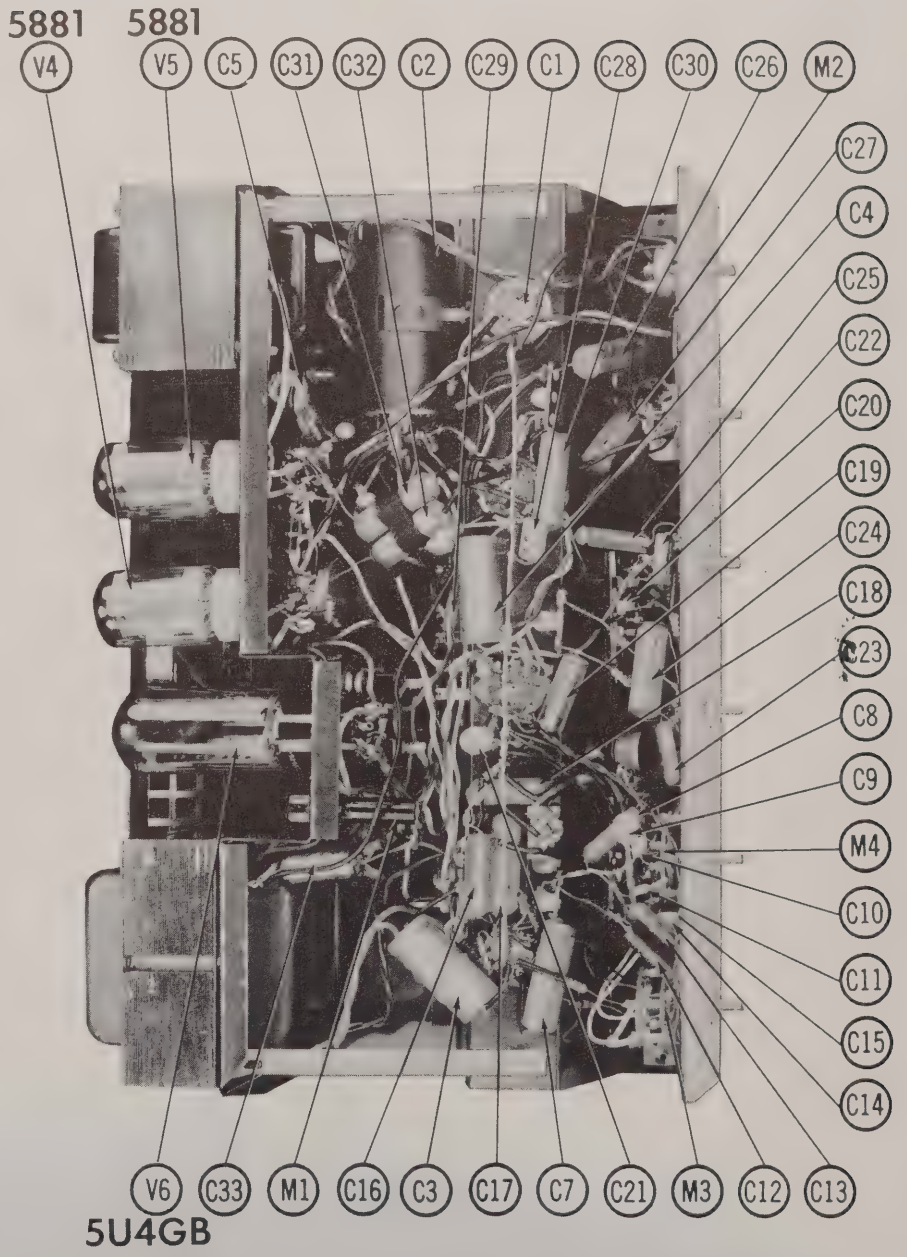
FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA								NOTES
	CAP.	VOLT	KNIGHT PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.		
C7	.1	600		P688N-1	DF-104	CUB6P1		GEM-601	6TM-P1		
C8	.0068	600		BPD-0068	D6-682	CUB6D68	ED-0068	GEM-6268	6TM-D68		
C9	1000			BPD-001	DD-102	K069	ED-001	DC521	5HK-D1		
C10	560			BPD-00056	DD-561	G063	ED-560	UC-5356	5GA-T56		
C11	270			BPD-00027	DD-271	G054	ED-270	UC-5327	5GA-T27		
C12	.01	600		BPD-01	DD-103	CUB6S1	ED-01	GEM-611	6TM-S1		
C13	.0068	600		BPD-0068	D6-682	CUB6D68	ED-0068	GEM-6268	6TM-D68		Note 2
C14	4700			BPD-0047	DD-472	K079	ED-0047	UC-5247	5HK-D47		Note 3
C15	2200			BPD-0022	D6-222	K073	ED-0022	UC-5222	5GA-D22		Note 4
C16	.022	600		BPD-02	DD-203	CUB6S22	ED-02	GEM-6122	6TM-S22		Note 5
C17	.047	600		BPD-05	DF-503	CUB6S47		GEM-6147	6TM-S47		
C18	.022	600		BPD-02	DD-203	CUB6S22	ED-02	GEM-6122	6TM-S22		Note 5
C19	.022	600		BPD-02	DD-203	CUB6S22	ED-02	GEM-6122	6TM-S22		
C20	330			BPD-00033	DD-331	G056	ED-330	UC-5333	5GA-T33		
C21	1500			BPD-0015	DD-152	K071	ED-0015	UC-5215	5GA-D15		
C22	15	500		1468-000015	D6-150	5W5Q15	ED-000015	UC-5415	1FM-415		
C23	.0056	600									
C24	.056	600									
C25	.0033	600		BPD-0033	D6-332	CUB6D33	ED-0033	GEM-6233	6TM-D33		
C26	.1	600		P688N-1	DF-104	CUB6P1		GEM-601	6TM-P1		
C27	.1	600		P688N-1	DF-104	CUB6P1		GEM-601	6TM-P1		
C28	47	500		1468-000047	D6-470	5W5Q47	ED-000047	UC-5447	1FM-447		
C29	470	500		1468-00047	D6-471	5W5T47	ED-00047	UC-5347	1FM-347		
C30	.047	600		BPD-05	DF-503	CUB6S47		GEM-6147	6TM-S47		
C31	.047	600		BPD-05	DF-503	CUB6S47		GEM-6147	6TM-S47		
C32	.047	600		BPD-05	DF-503	CUB6S47		GEM-6147	6TM-S47		
C33	.02	600		BPD-02	DD-203	CUB6S2	ED-02	GEM-612	6TM-S2		

Note 2: Model 94SZ709 uses .0047MFD in this application.
Note 3: Model 94SZ709 uses .0022MFD in this application.
Note 4: Model 94SZ709 uses .022MFD in this application.
Note 5: Model 94SZ709 uses .01MFD in this application.

CHASSIS - CAPACITOR IDENT.



PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESIST-ANCE	WATTS	KNIGHT PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	500K	½						Loudness-Tap@ 200K & 350K (Note 1)
B	Shaft							
C	Switch							
R2A	500K	½		AB-60	A47-500K-Z	Q13-133	U48	Treble
B	Shaft			AK-4	KSS-3	Not Req.	Not Req.	
R3A	500K	½		AB-60	A47-500K-Z	Q13-133	U48	Bass
B	Shaft			AK-4	KSS-3	Not Req.	Not Req.	
R4A	500K	½		AB-59	A47-500K-S	Q11-133	U50	Level Set
B	Shaft			AK-4	KSS-3	Not Req.	Not Req.	
C	Switch			KB-1	SWE-12	76-1	US-26	
R5A	500K	½		AB-60	A47-500K-Z	Q13-133	U48	Tuner Level
B	Shaft			AK-4	KSS-3	Not Req.	Not Req.	
R6A	500Ω	½						Damping
B	Shaft							
R7A	200Ω	1		VK-123	A43-200	WPK200	R250L	Hum Balance Amp. (Wire-wound)
B	Shaft			Not Req.	RS-2	Not Req.	Not Req.	
R8A	200Ω	1		VK-123	A43-200	WPK200	R250L	Hum Balance Mag. (Wire-wound)
B	Shaft			Not Req.	RS-2	Not Req.	Not Req.	
R9A	100Ω	2		VK-121	A43-100	WPK100	R100L	Bias (Wire-wound)
B	Shaft			Not Req.	RS-2	Not Req.	Not Req.	
R10A	100Ω	2		VK-121	A43-100	WPK100	R100L	Balance (Wire-wound)
B	Shaft			Not Req.	RS-2	Not Req.	Not Req.	

Note 1: Loudness control compensation network unit supplied with R1.

RESISTORS

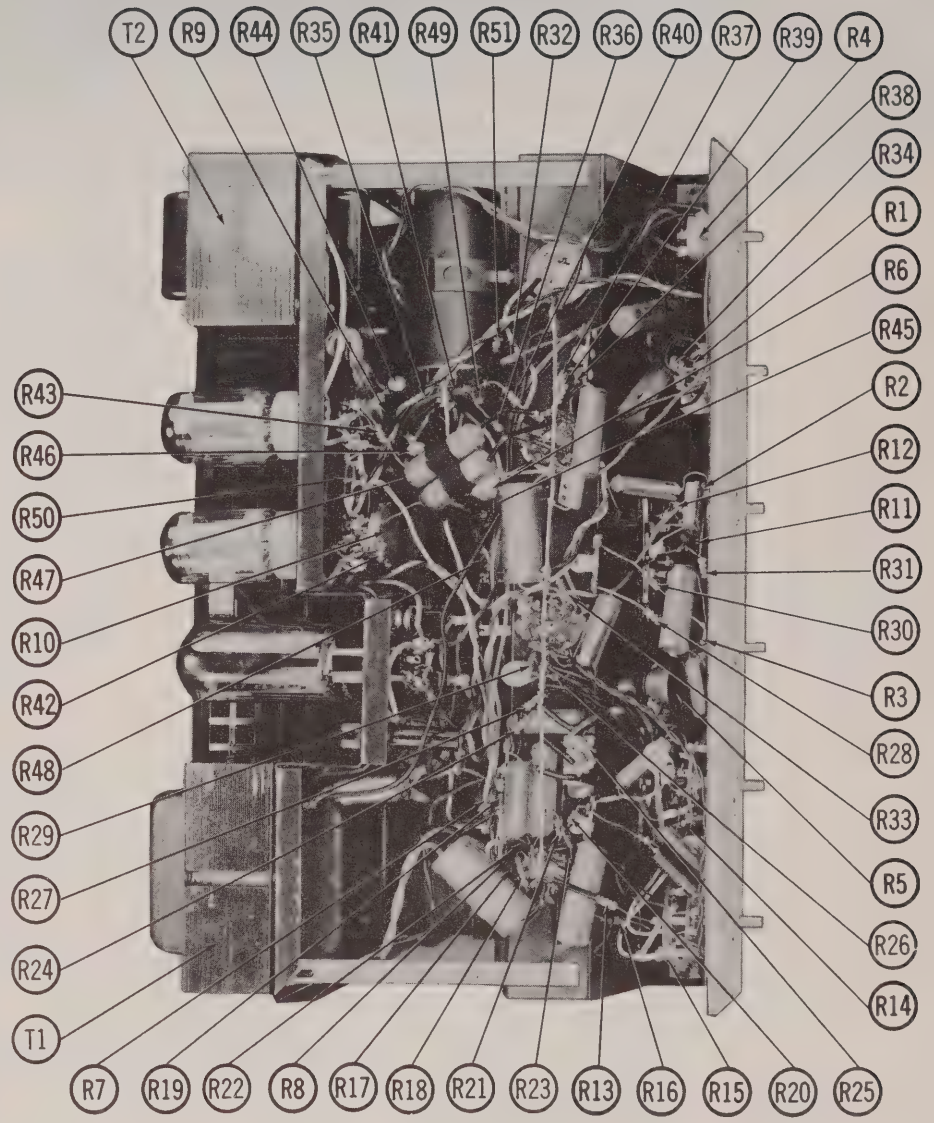
All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	KNIGHT PART No.	IRC PART No.	
R11	22K			BTS-22K	
R12	27K			BTS-27K	
R13	470K			BTS-470K	
R14	100K			BTS-100K	
R15	150K			BTS-150K	Note 2
R16	100K			BTS-100K	
R17	220K 5%			BTS-220K 5%	
R18	1500Ω 5%			BTS-1500 5%	
R19	10K			BTS-10K	Note 3
R20	68K			BTS-68K	
R21	470K			BTS-470K	
R22	47K 5%			BTS-47K 5%	Note 4
R23	1500Ω 5%			BTS-1500	
R24	47K			BTS-47K	Note 5
R25	1.5Meg			BTS-1.5Meg	Note 6
R26	3.3Meg			BTS-3.3Meg	
R27	33K			BTS-33K	
R28	47K			BTS-47K	
R29	6800Ω			BTS-6800	
R30	4700Ω			BTS-4700	
R31	47K			BTS-47K	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	KNIGHT PART No.	IRC PART No.	
R32	220K			BTS-220K	
R33	1500Ω			BTS-1500	
R34	470K			BTS-470K	
R35	10K			BTS-10K	
R36	270K			BTS-270K	
R37	470K			BTS-470K	
R38	680Ω			BTS-680	
R39	47K			BTS-47K	
R40	47K			BTS-47K	
R41	10K			BTS-10K	
R42	470K			BTS-470K	
R43	470K			BTS-470K	
R44	300Ω	10		PW10-300	
R45	3000Ω 5%			BTS-3000 5%	
R46	6Ω	10		PW10-7.5	
R47	180Ω 5%	1		BTA-180 5%	
R48	300Ω 5%	1		BTA-300 5%	
R49	10K			BTS-10K	
R50	150Ω	1		BTA-150	Note 1
R51	10K			BTS-10K	

Note 1: 4.7Ω or 6.8Ω may be used in some versions.
Note 2: 470K used in model 94SZ709.
Note 3: 47K used in model 94SZ709.
Note 4: 220K used in model 94SZ709.
Note 5: 68K used in model 94SZ709.
Note 6: 4.7Meg used in model 94SZ709.

CHASSIS-RESISTOR IDENT.



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA					
	PRI.	SEC. 1	SEC. 2	SEC. 3	KNIGHT PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	130VAC Tap @ 117VAC @ 1.1A	780VCT @ .120A	5VAC @ 3A	10.6V @ .18A SEC. 4 6.3VAC @ 2.6A	LP-0247-B					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	KNIGHT PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	6700Ω CT	16Ω Tap @ 8Ω	LO-0142						

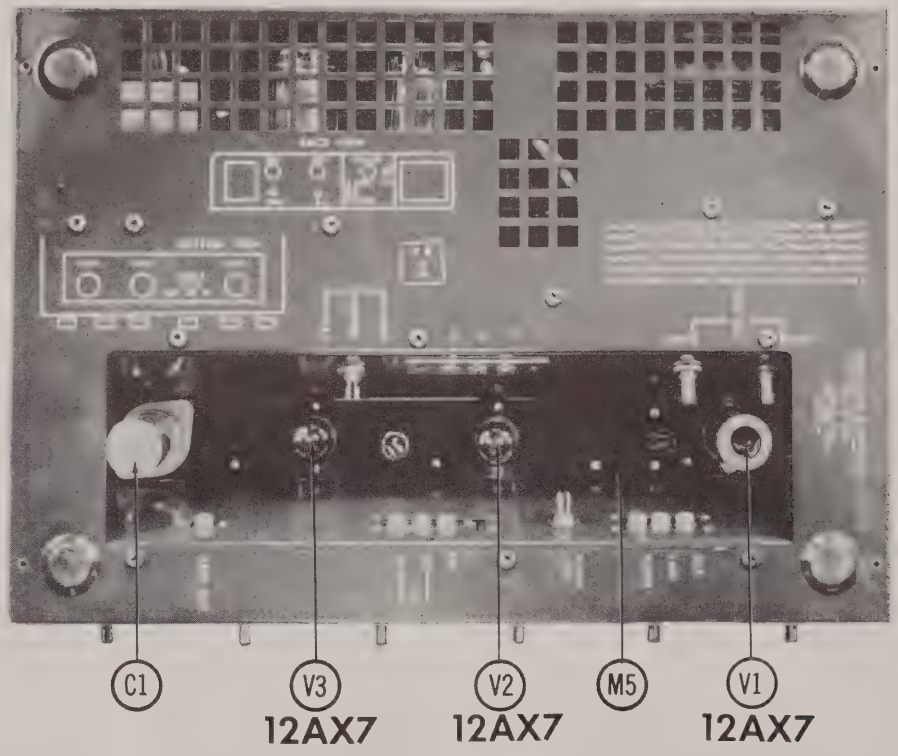
FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			KNIGHT PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	3AG	3A			312003. (3AG-3A)	341001	AGC 3	HKP

MISCELLANEOUS

ITEM No.	PART NAME	KNIGHT PART No.	NOTES
M2	Dial Lamp		#47
M3	Switch		Function Selector, Wafer Type (Two Gang)
M4	Switch		Roll Off, Wafer Type (One Gang)
M5	Switch		Rumble Filter, Slide Type (SPDT)

CHASSIS—BOTTOM VIEW



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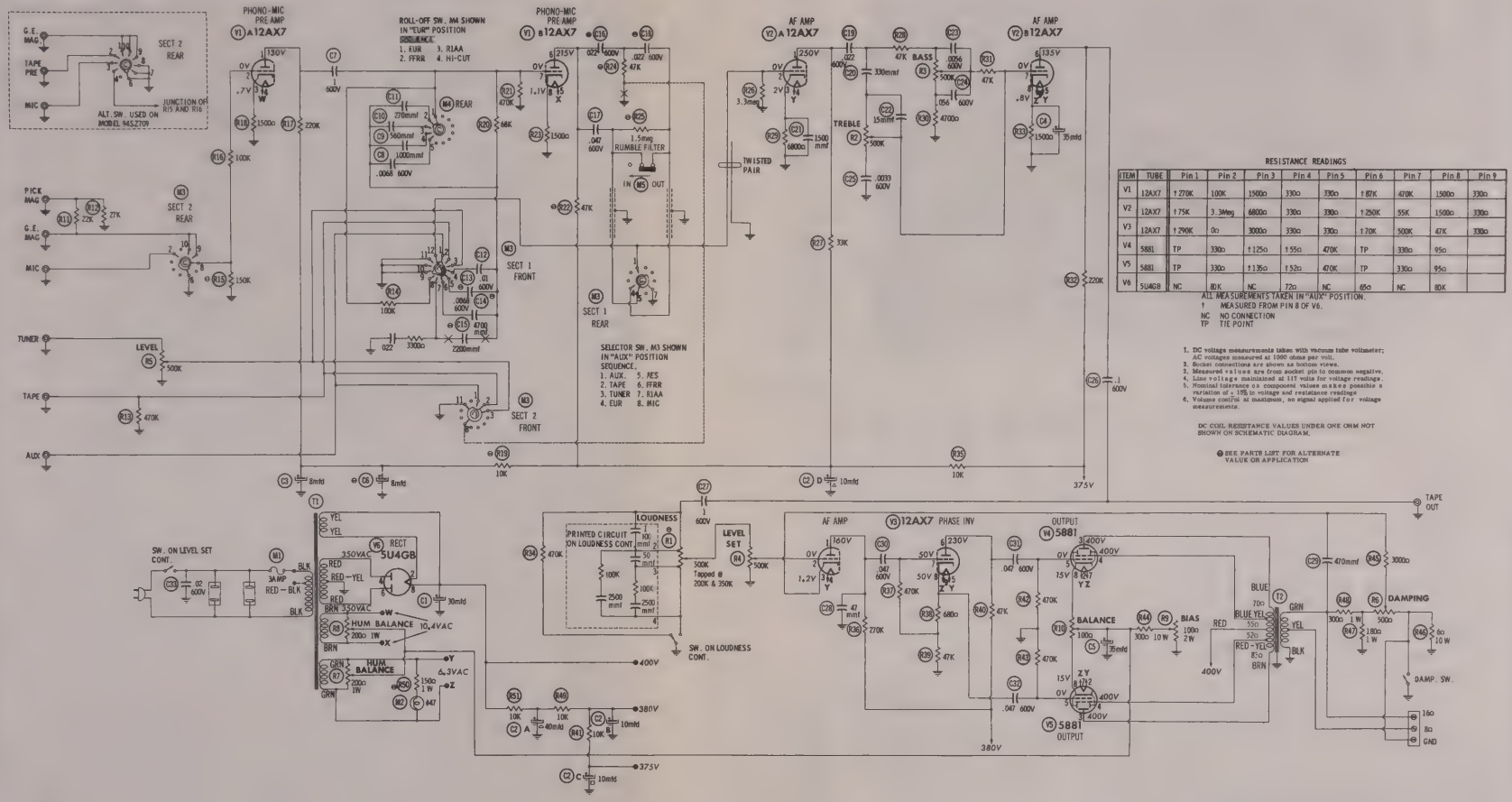

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AX7	↑270K	100K	1500Ω	330Ω	330Ω	↑87K	470K	1500Ω	330Ω
V2	12AX7	↑75K	3.3Meg	6800Ω	330Ω	330Ω	↑250K	55K	1500Ω	330Ω
V3	12AX7	↑290K	0Ω	3000Ω	330Ω	330Ω	↑70K	500K	47K	330Ω
V4	5881	TP	330Ω	↑125Ω	↑55Ω	470K	TP	330Ω	95Ω	
V5	5881	TP	330Ω	↑135Ω	↑52Ω	470K	TP	330Ω	95Ω	
V6	5U4GB	NC	80K	NC	72Ω	NC	65Ω	NC	80K	

ALL MEASUREMENTS TAKEN IN "AUX" POSITION.
↑ MEASURED FROM PIN 8 OF V6.
NC NO CONNECTION
TP TIE POINT

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

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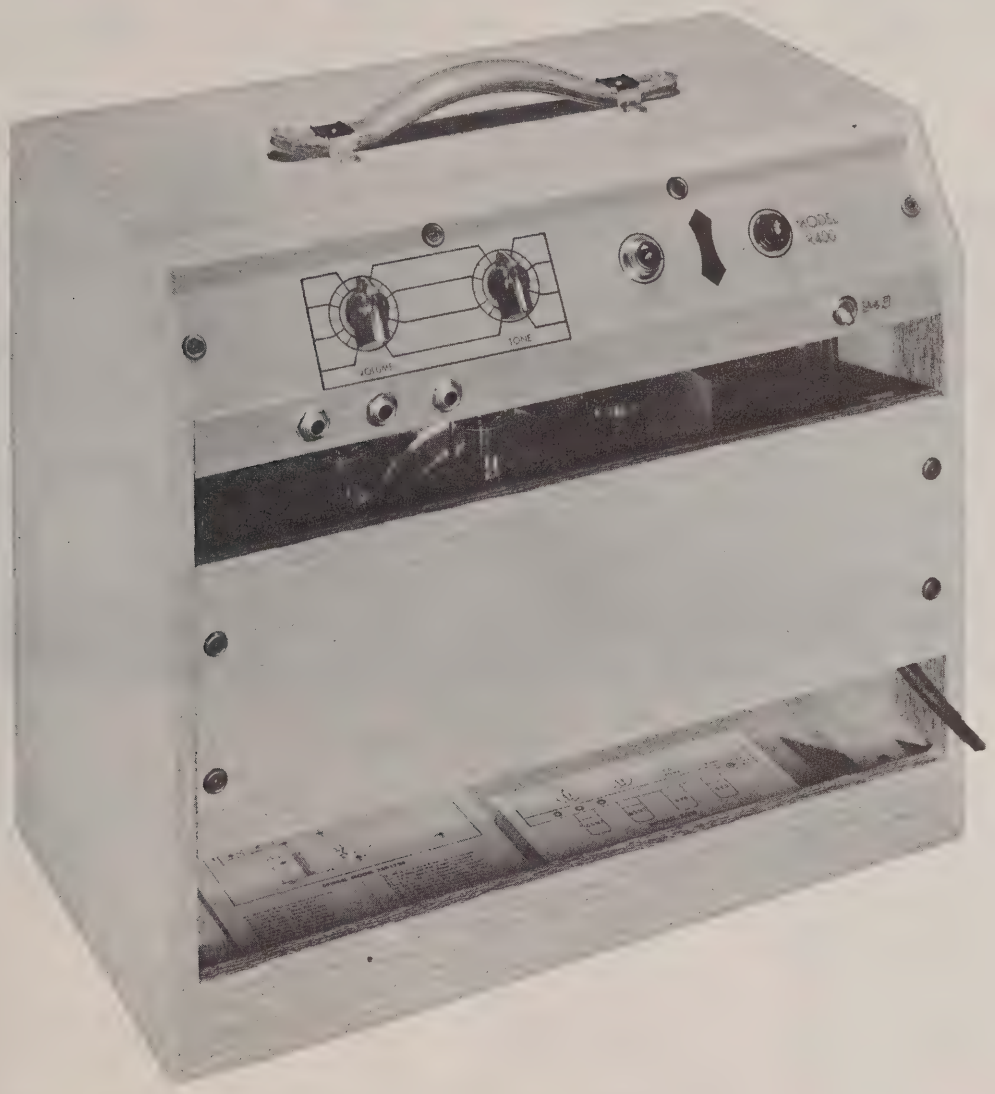
LECTROLAB
MODEL R-400



LECTROLAB
MODEL R-400

TRADE NAME	Lectrolab Model R-400
SUPPLIER	Spiegel Inc., 1061 W. 35th St., Chicago 9, Ill.
TYPE SET	AC Operated 3 Channel Audio Amplifier
TUBES (Four)	Types 6SN7GT Preamplifier, 6SN7GT AF Amplifier, 6V6GT Output, 5Y3GT Rectifier
POWER SUPPLY	110-120 Volts AC - 50/60 Cycles RATING .47 Amp. @ 117 Volts AC

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1957 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under international Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

PARTS LIST AND DESCRIPTIONS

LECTROLAB
MODEL R-400

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Preamplifier	6SN7GT	
V2	AF Amplifier	6SN7GT	
V3	Output	6V6GT	
V4	Rectifier	5Y3GT	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	LECTROLAB PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	■20	450		AFH3-35	CO260	FP376.3	TMT-32	T-135	TVL-3779
B	▲10	450					TD-10-450		
C	10	450							
C2	20	25		PRS25V25	BBR20-25	TC26	TD-25-25	FM-0225	TVA-1205
C3	4	450		PRS450V4	BR445	TC70	TD-4-450	FM-4504	TVA-1702
C4	20	25		PRS25V25	BBR20-25	TC26	TD-25-25	FM-0225	TVA-1205
C5	20	25		PRS25V25	BBR20-25	TC26	TD-25-25	FM-0225	TVA-1205

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	LECTROLAB PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C6	.004	600		BPD-004	D6-402	CUB6D4	GP2-333-472	PT624	6TM-D4	
C7	.05	400		BPD-05	DF-503	CUB4S5		PT415	4TM-S5	
C8	.05	400		BPD-05	DF-503	CUB4S5		PT415	4TM-S5	
C9	.05	400		BPD-05	DF-503	CUB4S5		PT415	4TM-S5	
C10	.02	400		BPD-02	DD-203	CUB4S2	817-02	PT412	4TM-S2	
C11	.02	400		BPD-02	DD-203	CUB4S2	817-02	PT412	4TM-S2	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	LECTROLAB PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	500K	½	BA211-1274	AB-60	A47-500K-Z	Q13-133	U48	Volume
B	Shaft			AK-4	KSS-3	Not Req.	Not Req.	
R2A	500K	½	BA211-1274	AB-60	A47-500K-Z	Q13-133	U48	Tone
B	Shaft			AK-4	KSS-3	Not Req.	Not Req.	

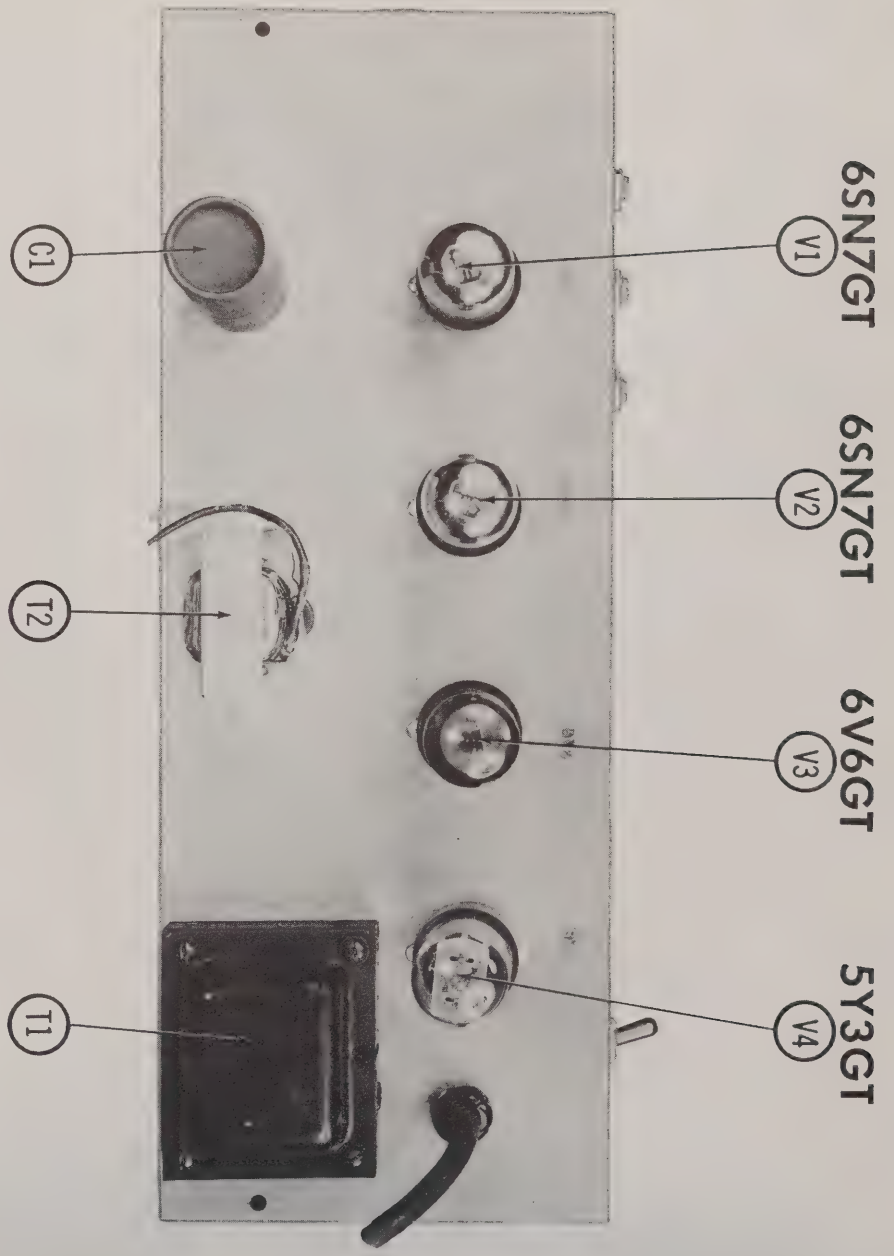
RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	LECTROLAB PART No.	IRC PART No.	
R3	100K			BTS-100K	
R4	100K			BTS-100K	
R5	1.2Meg			BTS-1.2Meg	
R6	47K			BTS-47K	
R7	1500Ω			BTS-1500	
R8	100K			BTS-100K	
R9	47K			BTS-47K	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	LECTROLAB PART No.	IRC PART No.	
R10	1500Ω			BTS-1500	
R11	470K			BTS-470K	
R12	47K			BTS-47K	
R13	2700Ω			BTS-2700	
R14	10K			BTS-10K	
R15	270Ω	2		BTB-270	
R16	1Meg	1		BTA-1Meg	
R17	270Ω	2		BTB-270	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA					
	PRI.	SEC. 1	SEC. 2	SEC. 3	LECTROLAB PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117VAC @ .47A	565VCT @ .047A	5VAC @ 2A	6.3VAC @ 1.84A	46.59	P9901①	P-3051	PM-8403	22R01	R-8B

① Parallel & phase 6.3V windings.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	LECTROLAB PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	5700Ω	6-8Ω	28P1D01	Z1007	A-2902	A-3849	24S61	S-53X	

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	LECTROLAB PART No.	QUAM PART No.	
SP1	10"	PM	6-8Ω	1980	10A4	

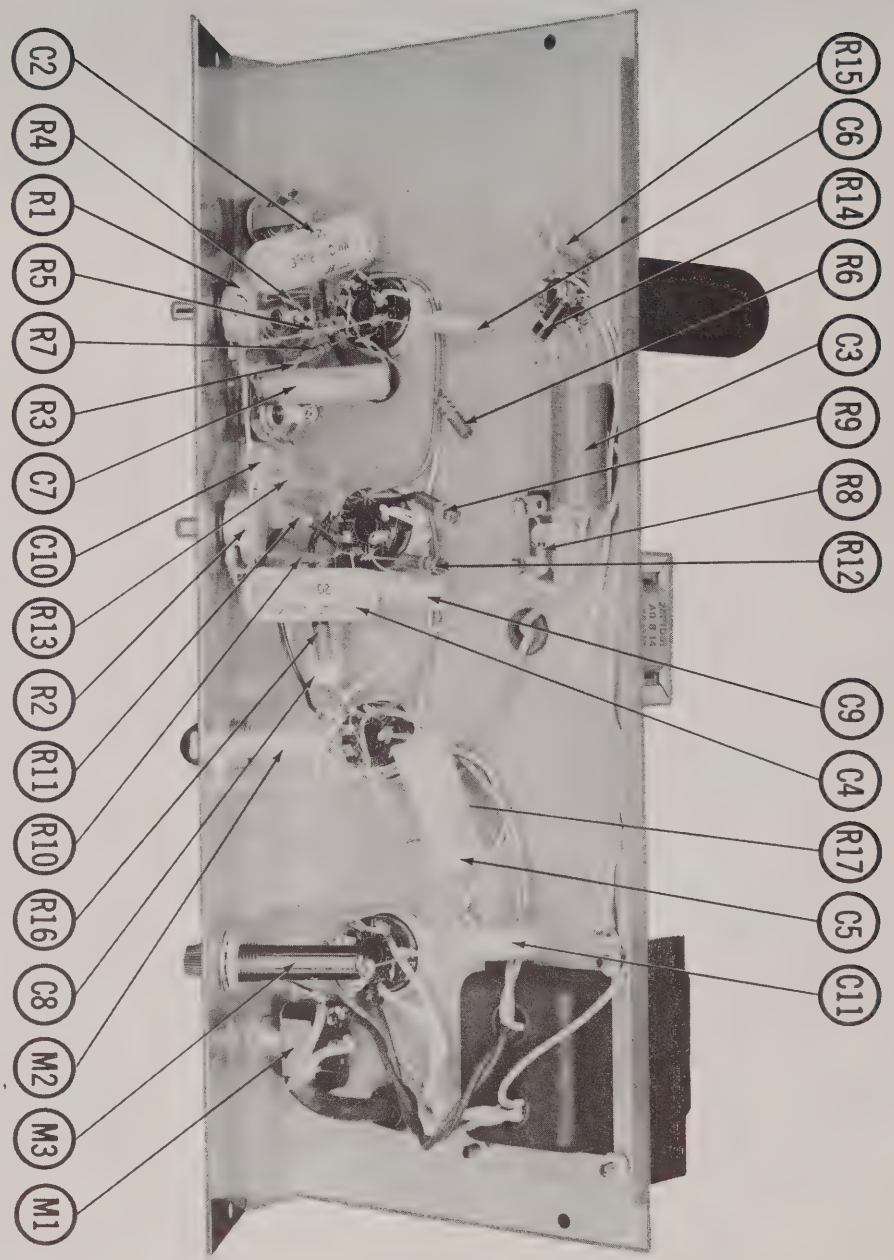
FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			LECTROLAB PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	3AG	2A			312002. (3AG-2A)	342001	AGC 2	HKP

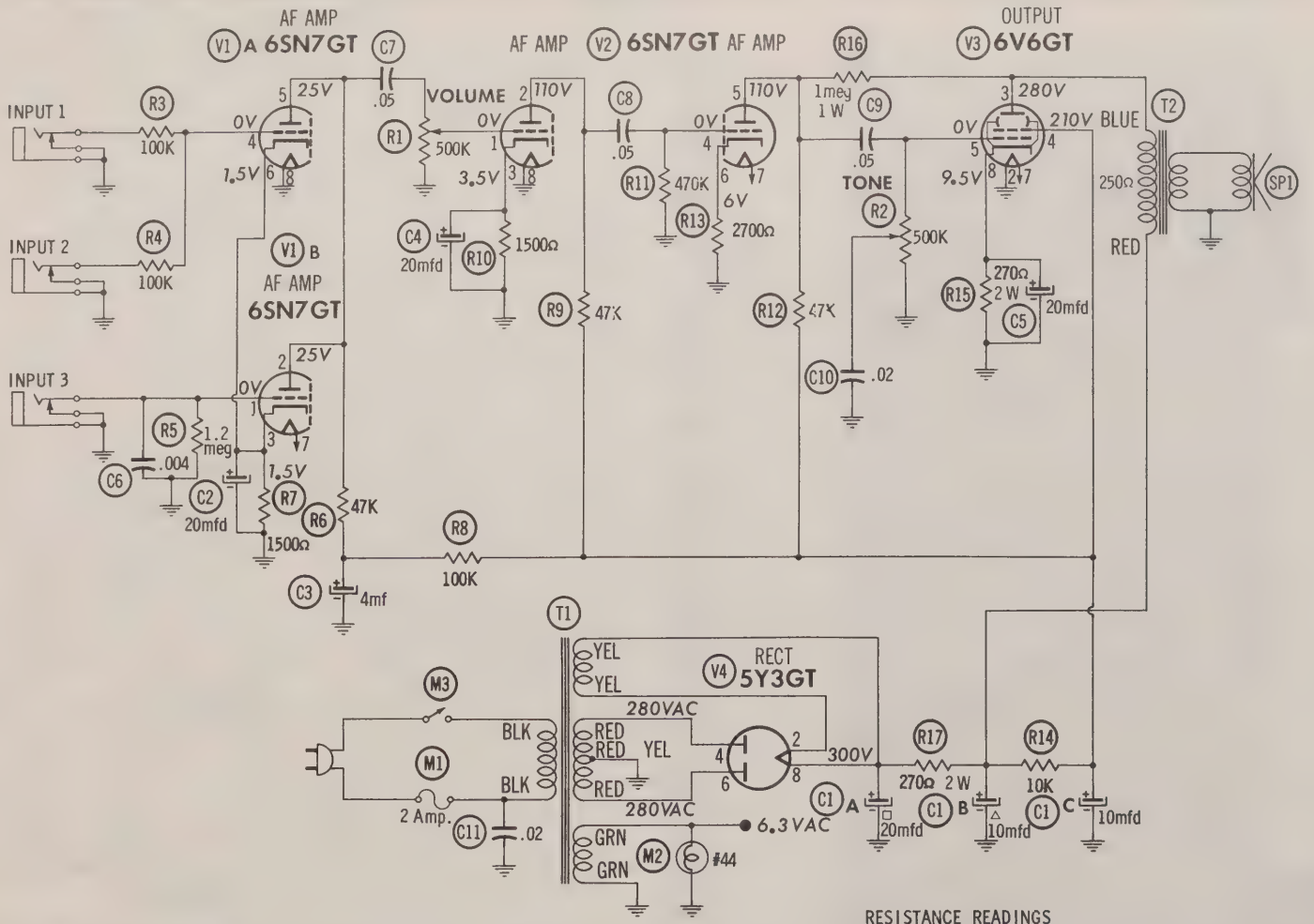
MISCELLANEOUS

ITEM No.	PART NAME	LECTROLAB PART No.	NOTES
M2 M3	Pilot Light Switch		#44 On-Off (Power) SPST, Toggle Type

CHASSIS—BOTTOM VIEW



LECTROLAB MODEL R-400



1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V1	6SN7GT	0Ω	†160K	1500Ω	50K	†160K	1500Ω	.2Ω	0Ω
V2	6SN7GT	0Ω	†60K	1500Ω	470K	†60K	2700Ω	.2Ω	0Ω
V3	6V6GT	NC	0Ω	†520Ω	†10K	500K	TP	.2Ω	270Ω
V4	5Y3GT	NC	10K	NC	315Ω	NC	300Ω	NC	10K

† MEASURED FROM PIN 8 OF V4.
NC NO CONNECTION
TP TIE POINT

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MAGNAVOX CHASSIS AMP152AA, AMP154AA

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

MAGNAVOX CHASSIS
AMP152AA, AMP154AA

MAGNAVOX CHASSIS
AMP152AA, AMP154AA

TRADE NAME	Magnavox Chassis AMP-152AA, AMP-154AA
MANUFACTURER	Magnavox Co., 2131 Bueter Rd., Fort Wayne, Ind.
TYPE SET	AC Operated Audio Amplifier
TUBES (Four)	Types 12AX7 AF Amp.-Phase Inv., (2) 35C5 Output, 35W4 Rectifier
POWER SUPPLY	110-120 Volts AC - 50/60 Cycles RATING .30 Amp. @ 117 Volts AC

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PARTS LIST AND DESCRIPTIONS

MAGNAVOX
CHASSIS AMP-152AA

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	AF Amp. -Phase Inverter	12AX7	
V2	Output	35C5	
V3	Output	35C5	
V4	Rectifier	35W4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	MAGNAVOX PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	■40	150	270023-24	AFH3-10	CO090	FP311.5	TMT-9	T-045	TVL-3438
B	▲40	150							
C	20	150							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

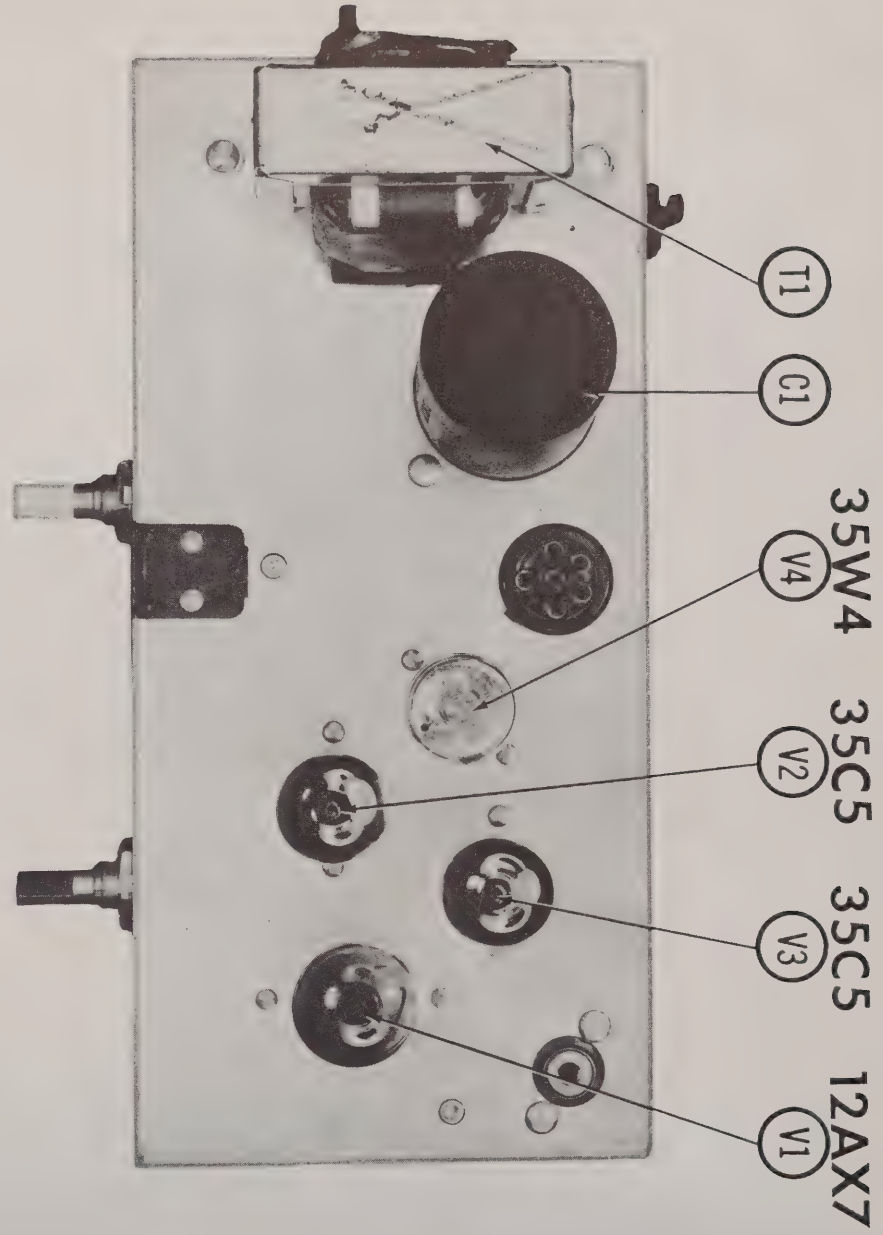
ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	MAGNAVOX PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2	.047	600	250201-11	BPD-05	DF-503	CUB6S47		GEM-6147	6TM-S47	
C3	2000		250218-20	BPD-002	DD-202	K072	ED-002	DC522	5HK-D2	
C4	2000		250218-20	BPD-002	DD-202	K072	ED-002	DC522	5HK-D2	
C5	10000		250175-2	BPD-01	DD-103	K082	ED-01	DC511	5HK-S1	Note 1
C6	.022	200	250202-9	BPD-02	DD-203	CUB4S22	ED-02	GEM-4122	4TM-S22	Note 2
C7	10000		250175-2	BPD-01	DD-103	K082	ED-01	DC511	5HK-S1	
C8	10000		250175-2	BPD-01	DD-103	K082	ED-01	DC511	5HK-S1	
C9	5000		250175-30	BPD-005	DD-502	K080	ED-005	DC525	5HK-D5	
C10	1.0	100	270172-9	P288N-1.0		CUB2W1		GEM-21	2TM-M1	
C11	1.0	100	270172-9	P288N-1.0		CUB2W1		GEM-21	2TM-M1	
C12	.047	600	250201-11	BPD-05	DF-503	CUB6S47		GEM-6147	6TM-S47	

Note 1: Chassis AMP-154AA uses .068MFD in this application. (Part #250202-12)
Note 2: Chassis AMP-154AA uses .1MFD in this application. (Part #250202-13)

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	MAGNAVOX PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	3.3Meg	½	220131-6				UDT303	Volume-Tap@ 300K & 1.5Meg
B	Shaft						Not Req.	
R2A	1Meg	½	220123-23	B-70-S	A47-1Meg-Z	Q13-137	U53	Treble
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
C	Switch			Not Req.	SWE-12	76-1	US-26	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	MAGNAVOX PART No.	IRC PART No.	
R3	100K		230104-86	BTS-100K	
R4	220K		230104-90	BTS-220K	
R5	470Ω		230104-58	BTS-470	
R6	12K			BTS-12K	Note 1
R7	220K		230104-90	BTS-220K	
R8	470Ω		230104-58	BTS-470	Note 2
R9	470K		230104-94	BTS-470K	
R10	470K		230104-94	BTS-470K	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	MAGNAVOX PART No.	IRC PART No.	
R11	1500Ω		230104-64	BTS-1500	
R12	100Ω	1	230105-50	BTA-100	
R13	22K		230104-78	BTS-22K	Note 3
R14	220K		230104-90	BTS-220K	Note 4
R15	68K		230104-84	BTS-68K	
R16	6800Ω		230104-72	BTS-6800	
R17	680Ω		230104-60	BTS-680	Note 6
R18	68K		230104-84	BTS-68K	Note 5

Note 1: 22K used in some versions. (Part #230104-78)
Note 2: 3300Ω used in some versions. (Part #230104-68)
Note 3: Chassis AMP-154AA use 10K in this application. (Part #230104-74)
Note 4: Chassis AMP-154AA use 68K in this application. (Part #230104-84)
Note 5: Not used in some versions.
Note 6: Not used in chassis AMP-154AA.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	MAGNAVOX PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	3750Ω	3-4Ω	320265-1						

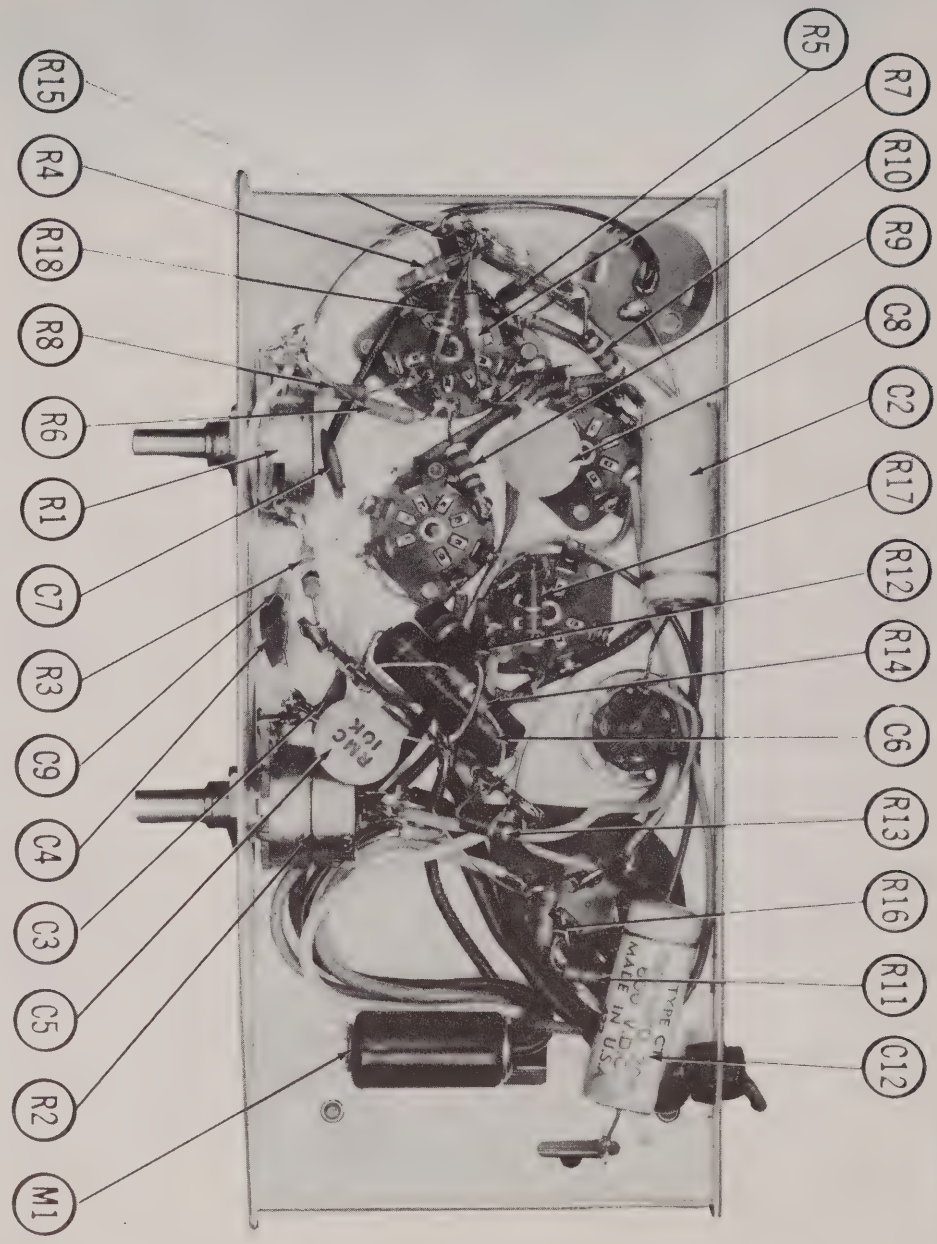
SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	MAGNAVOX PART No.	QUAM PART No.	
SP1	6"	PM	3-4Ω	583792-1		
SP2	4"	PM	3-4Ω	583779-1		

MISCELLANEOUS

ITEM No.	PART NAME	MAGNAVOX PART No.	NOTES
M1	Pilot Light		#1847 (Not used in chassis AMP-154AA)

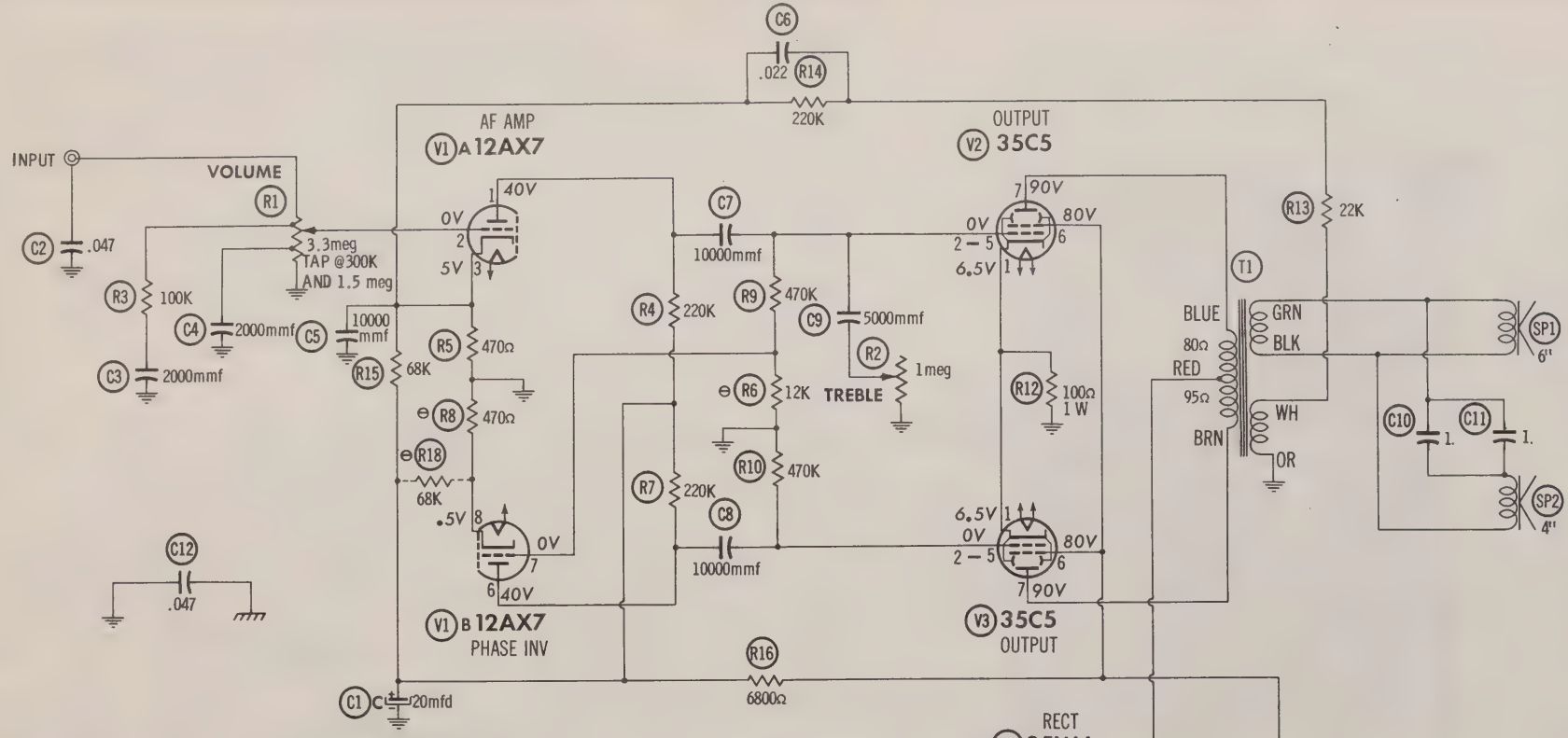
CHASSIS—BOTTOM VIEW



MAGNAVOX
CHASSIS AMP-152AA

MAGNAVOX
CHASSIS AMP-152AA

SET 351 FOLDER 10



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AX7	†230K	0Ω	470Ω	0Ω	12Ω	†230K	12K	470Ω	6Ω
V2	35C5	100Ω	480K	12Ω	45Ω	480K	†1500Ω	†80Ω		
V3	35C5	100Ω	470K	45Ω	80Ω	470K	†1500Ω	†95Ω		
V4	35W4	NC	NC	80Ω	115Ω	110Ω	110Ω	10K		

† MEASURED FROM PIN 7 OF V4.
NC NO CONNECTION

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

Θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

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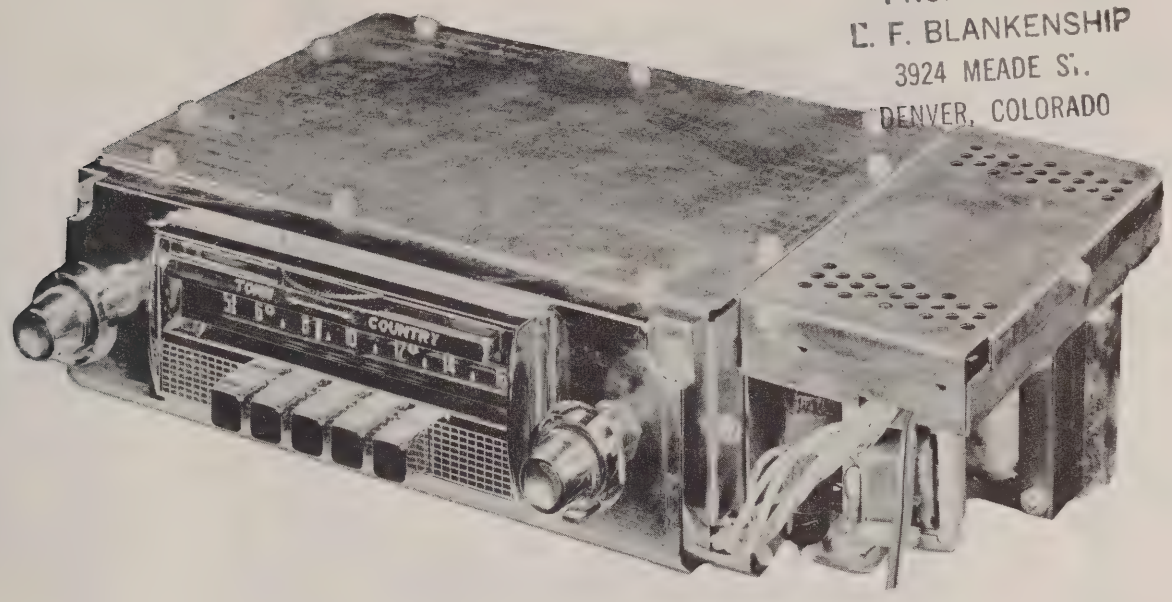
MOPAR MODELS
912 (C-5696), 912HR (C-5696HR)



MOPAR MODELS
912 (C-5696), 912HR (C-5696HR)

TRADE NAME	Mopar Models 912 (C-5696), 912HR (C-5696HR)
MANUFACTURER	Philco Corp., Tioga & "C" Sts., Philadelphia, Pa.
TYPE SET	Battery Operated AM Automobile Receiver With Pushbutton & Signal Seeking Tuning
TUBES (Nine)	Types 12BA6 RF Amp., 12BE6 Conv., 12BA6 IF Amp., 12AV6 Det.-AVC-AF Amp., 12CS6 Phase Det., 12AU7 Relay Cont.-Phase Inv., (2) 12AQ5 Output, 12X4 Rectifier
POWER SUPPLY	12 Volt Storage Battery — RATING 4 Amp. @ 12.6 Volts DC
TUNING RANGE—BROADCAST	540KC-1605KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Tone control to mid-range.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
1.	.05MFD	High side to pin 7 (grid) of 12BE6 (V2). Low side to chassis.	265KC (400∿Mod)	Set tuner so that latch pawl just touched trigger ear on frame.	DC probe to point (A). Common to chassis.	A2, A3, A4	Adjust for maximum deflection.
2.	"	"	"	"	"	A1	Adjust for maximum dip. A1 is a critical adjustment. Rock A1 to be sure the indicator dip is due to resonance at 265KC and not due to mistuning on either side of 265KC.
3.	Fig. 1	Thru dummy to antenna receptacle.	1605KC	"	"	A5	Adjust for maximum deflection.
4.	"	"	1400KC	1400KC	"	A6, A7	"
5.	With radio installed in car and antenna fully extended, tune in a weak station near 1400KC and adjust A7 for maximum volume.						

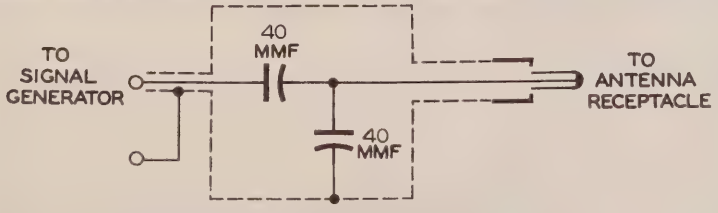


FIG. 1

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PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	RF Amplifier	12AB6	
V2	Converter	12BE6	
V3	IF Amplifier	12BA6	
V4	Det. -AVC-AF Amplifier	12AV6	
V5	Phase Detector	12CS6	

ITEM No.	USE	TYPE	NOTES
V6	Relay Cont. -Phase Inv.	12AU7	
V7	Output	12AQ5	
V8	Output	12AQ5	
V9	Rectifier	12X4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	PHILCO PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	■20	350	61-0086A	AFH3-106	CO960	FP333.6	TMT-91	T-465	TVL-3634
B	▲10	350							
C	20	25							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	PHILCO PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2	.047	200	30-4650-45	BPD-05	DF-503	CUB2S47		GEM-2147	2TM-S47	
C3	22		62-022409001	NP0-SI 22	D6-220	TZ14	ED-22	ZT-542	5TCC-Q22	
C4	15		62-0154091l	NP0-SI 15	D6-150	TZ11	ED-15		5TCC-Q15	
C5	245		30-1224-129							
C6	.1	200	30-4650-47	P288N-1	DF-104	CUB2P1		GEM-401	2TM-P1	
C7	.047	200	30-4650-45	BPD-05	DF-503	CUB2S47		GEM-4147	2TM-S47	
C8	4.7		30-1221-5	NP0-SI 4.7	TCZ-4R7	TZ07	TCO-4.7	ZT-5547	5TCCB-V47	
C9	100		62-110009001	SI 100	D6-101	TP34	GP-100	UC-531	5GA-T1	
C10	100		62-110009001	SI 100	D6-101	TP34	GP-100	UC-531	5GA-T1	
C11	20		62-020309011	NP0-SI 20	TCZ-20	TZ13	TCO-20	ZT-542	5TCC-Q2	
C12	10000		30-1238-2	BPD-01	DD-103	K082	ED-01	DC511	5HK-S1	
C13	10000		30-1238-2	BPD-01	DD-103	K082	ED-01	DC511	5HK-S1	
C14	.047	200	30-4650-45	BPD-05	DF-503	CUB2S47		GEM-4147	2TM-S47	
C15	.047	200	30-4650-45	BPD-05	DF-503	CUB2S47		GEM-4147	2TM-S47	
C16	330		62-133001001	SI 330	D6-331	TP43	GP-330	UC-5333	5GA-T33	
C17	10000		30-1238-2	BPD-01	DD-103	K082	ED-01	DC511	5HK-S1	
C18	5000		30-1238-1	BPD-005	DD-502	K080	ED-005	DC525	5HK-D5	
C19	220		62-122001001	SI 220	D6-220	TP39	GP-220	UC-5322	5GA-T22	
C20	10000		30-1238-2	BPD-01	DD-103	K082	ED-01	DC511	5HK-S1	
C21	.1	200	30-4650-47	P288N-1	DF-104	CUB2P1		GEM-401	2TM-P1	
C22	.25	100	30-4650-49	P288N-25		CUB2P25		GEM-4025	2TM-P25	
C23	5000		30-1238-1	BPD-005	DD-502	K080	ED-005	DC525	5HK-D5	
C24	.01	600	30-4650-58	BPD-01	D6-103	CUB6S1	GP-10000	GEM-611	6TM-S1	
C25	.01	600	30-4650-58	BPD-01	D6-103	CUB6S1	GP-10000	GEM-611	6TM-S1	
C26	.001	600	30-4650-52	BPD-001	D6-102	CUB6D1	GP-1000	GEM-621	6TM-D1	Note 1
C27	.047	400	30-4671-45	BPD-05	DF-503	CUB4S47		GEM-4147	4TM-S47	
C28	.033	1000	30-4650-95	P1088N-033		CUB16S33		GEM-10133	10TM-S35	
C29	.5	100	61-0183	VHC36		ST2P5		RF480	68P20	
C30	330		62-133001001	SI 330	D6-331	TP43	GP-330	UC-5333	5GA-T33	
C31	.5	100	61-0183	VHC36		ST2P5		RF480	68P20	

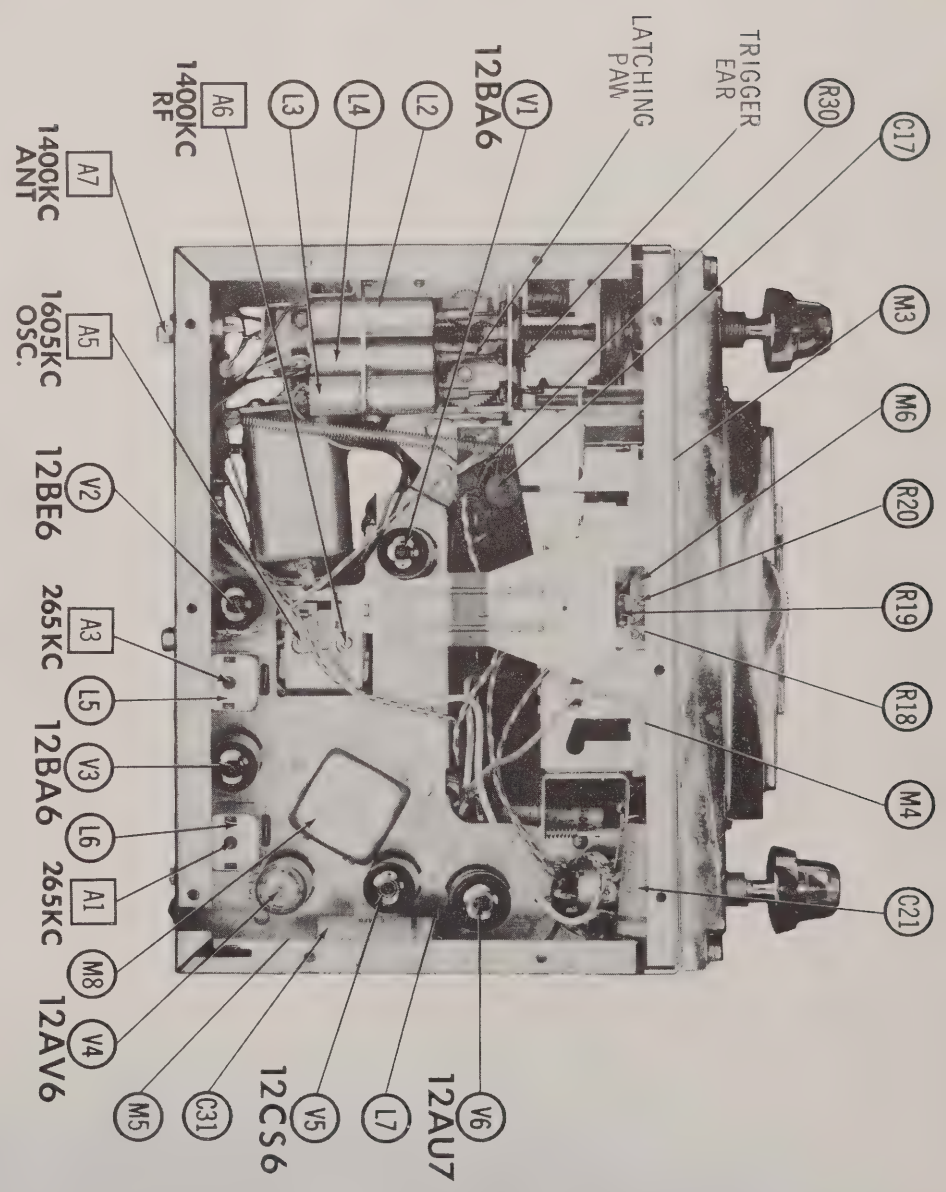
Note 1. Model 912 (C-5696) uses .0068MFD in this application (Part #30-4650-91).

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	PHILCO PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	4Meg *		33-5580-7		RTV-611C			Tone - Note 1
B	2Meg							Volume
C	Switch							
R2	25Ω	2	33-5576-1					Fader Control (Rear Speaker)

* R1A is open in center.
Note 1. In Model 912 (C-5696) R1B is 350K (R1 part #33-5557-16).

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	PHILCO PART No.	IRC PART No.	
R3	10K		66-3108340	BTS-10K	
R4	470Ω		66-1478340	BTS-470	
R5	68K		66-3688340	BTS-68K	
R6	22K		66-3228340	BTS-22K	
R7	1Meg		66-5108340	BTS-1Meg	
R8	470K		66-4478340	BTS-470K	Note 1
R9	27K	2	66-3275340	BTB-27K	Note 3
R10	220K		66-4228340	BTS-220K	
R11	330Ω		66-1338340	BTS-330	
R12	22K		66-3228340	BTS-22K	
R13	1Meg		66-5108340	BTS-1Meg	
R14	1Meg		66-5108340	BTS-1Meg	
R15	1Meg		66-5108340	BTS-1Meg	
R16	10Meg		66-6108340	BTS-10Meg	
R17	180Ω		66-1188340	BTS-180	
R18	820Ω		66-1828340	BTS-820	
R19	820Ω		66-1828340	BTS-820	
R20	5600Ω		66-2568340	BTS-5600	
R21	2200Ω		66-2228340	BTS-2200	
R22	1Meg		66-5108340	BTS-1Meg	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	PHILCO PART No.	IRC PART No.	
R23	1Meg		66-5108340	BTS-1Meg	
R24	68K		66-3688340	BTS-68K	
R25	3300Ω		66-2338340	BTS-3300	
R26	100K		66-4108340	BTS-100K	
R27	100K		66-4108340	BTS-100K	
R28	4.7Meg		66-5478340	BTS-4.7Meg	
R29	1Meg		66-5108340	BTS-1Meg	
R30	15K		66-3158340	BTS-15K	
R31	680Ω		66-1688340	BTS-680	
R32	220K		66-4228340	BTS- 220K	
R33	10Meg		66-6108340	BTS-10Meg	
R34	220K		66-4228340	BTS-220K	
R35	470K		66-4478340	BTS-470K	
R36	10K		66-3108340	BTS-10K	Note 1
R37	330Ω	1	66-1334340	BTA-330	
R38	470K		66-4478340	BTS-470K	
R39	220Ω	1	66-1224340	BTA-220	
R40	1000Ω	2	66-2105340	BTB-1000	Note 2
R41	220Ω	1	66-1224340	BTA-220	
R42	220Ω	1	66-1224340	BTA-220	

Note 1. Not used in Model 912 (C-5696).
Note 2. Model 912 (C-5696) use 1 Watt in this application (Part #66-2104340).
Note 3. Model 912 (C-5696) use 1 watt in this application (Part #66-3274340).

TRANSFORMER (VIBRATOR)

ITEM No.	RATING				REPLACEMENT DATA					
	PRI.	SEC. 1	SEC. 2	SEC. 3	PHILCO PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	12.6VCT @ 2.4A	560VCT @ .063A			32-8592-1	V3903	P-3068	P-6494	22R52	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	PHILCO PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	6200Ω CT	3-4Ω	32-8316-10 ①	Z1004	A-2900	A-3850	22S47	S-51X	① Alternate part #32-8316-7

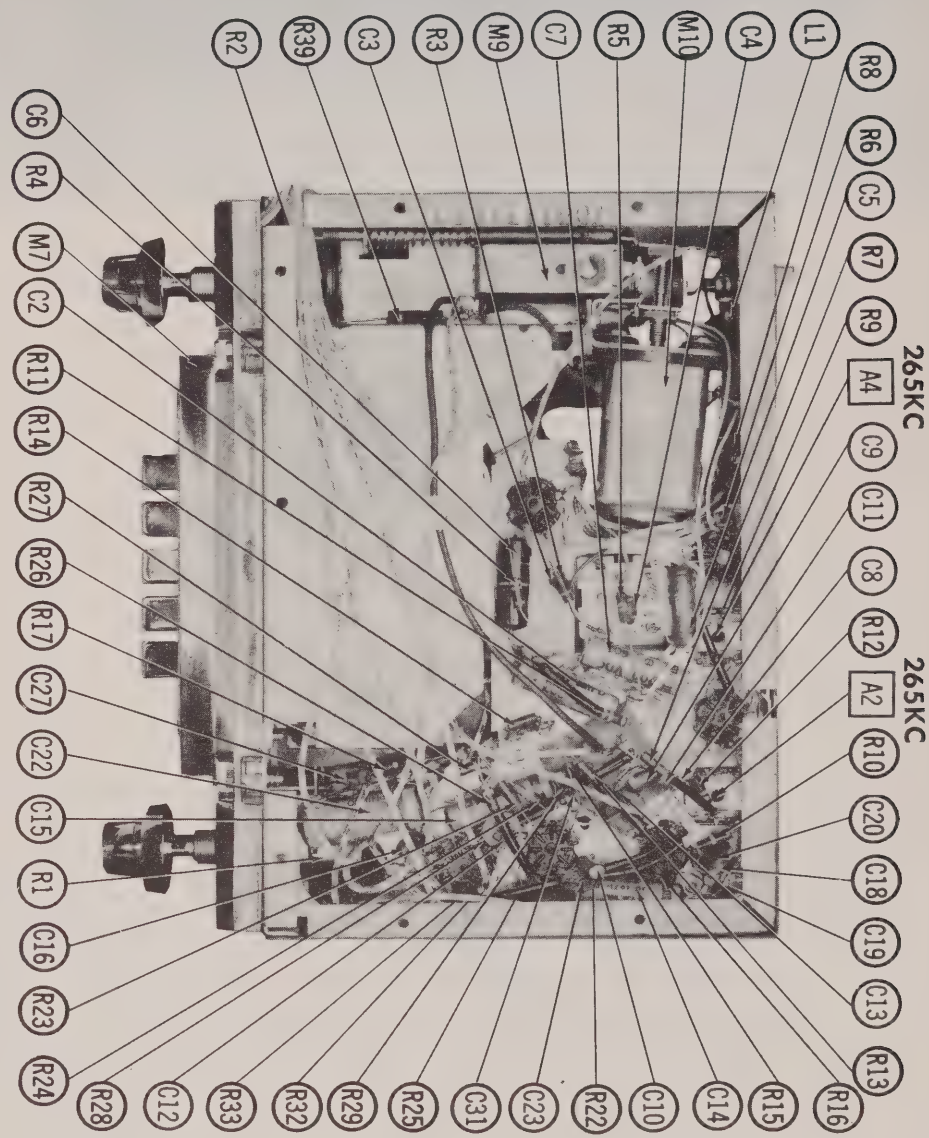
SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	PHILCO PART No.	QUAM PART No.	
SP1	7"	PM	3-4Ω	36-1632-8	7A31	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		PHILCO PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Ant. Loading Coil	32-4422-24	19-1004			5.6 Microhenries, IRC part #CL-1
L2	Ant. Coil	76-9408				Core part #28-10485
L3	RF Coil	76-9407				Core part #28-10485
L4	Osc. Coil	76-9406				Core part #28-10484
L5	Input IF	32-4160-17A	16-6752	BC-350	12-H1	
L6	Output IF	32-4240-12A				
L7	Fil. Choke	32-1374-5				
L8	Vib. Hash Choke	32-4170-4				

CHASSIS—BOTTOM VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FREQUENCY	REPLACEMENT DATA				NOTES
				PHILCO PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	RADIART PART No.	
M1	Interrupter	12.6V	115∿	41-2054	6330	G883	6330	

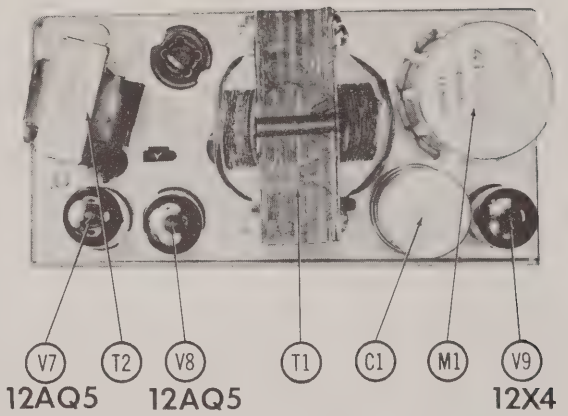
FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			PHILCO PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M2	SFE	9A	AD-2243-7	41-3910-10	307009. (SFE 9A)	155009.	SFE 9	HRH

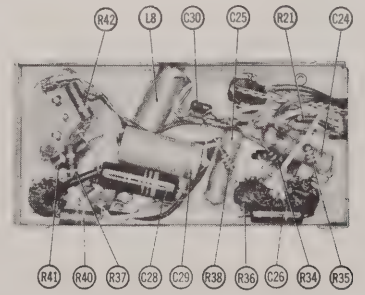
MISCELLANEOUS

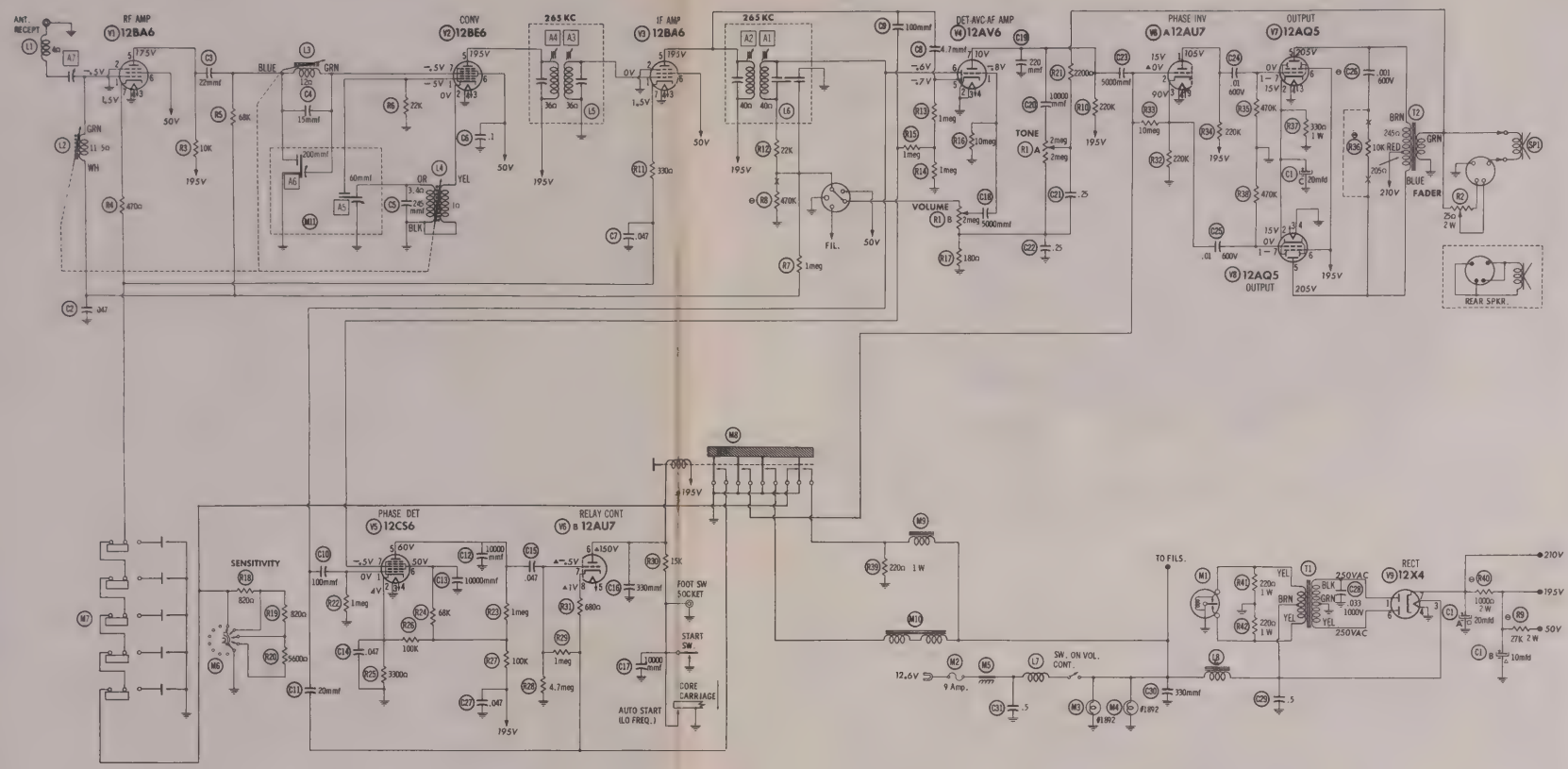
ITEM No.	PART NAME	PHILCO PART No.	NOTES
M3	Dial Light	34-2031-10	#1892
M4	Dial Light	34-2031-10	#1892
M5	Spark Plate	30-1254	300 MMF
M6	Switch	42-2040	Sensitivity (SP-4 position, rotary, wafer type)
M7A	Switch		Pushbutton control. Part of tuner switch assy. Part #76-9367
B	Switch		Automatic start, motor search (Low frequency) Part of tuner switch assy. Part #76-9367
C	Switch		Start, search tuner. Part of tuner switch assy. Part #76-9367
M8	Relay	42-4026-1	Search
M9	Solenoid	42-4027-1	Clutch, search tuning
M10	Motor	41-2050-2	Search
M11	Trimmer Cap.	31-6522-5	Dual: Osc. & RF . Unit also includes 200MMF & 60MMF fixed capacities.
A7	Padder Cap.	31-6502-6	Ant.
	Knob	28-10342	Tone & fader
	Knob	27-4687-23	On-off-volume & tuning
	Dial Scale	54-9352	
	Dial Glass	54-6167	
	Pushbutton Assy.	76-9288	
	Cover	56-6708FA8	Pushbutton (5 used)

CHASSIS—TOP VIEW



CHASSIS—BOTTOM VIEW





1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Battery voltage maintained at 13.6 volts for voltage readings.
5. Nominal tolerance on components values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12BA6	1.2Meg	0Ω	1.9Ω	0Ω	†10K	†28K	470Ω		
V2	12BE6	22K	1Ω	1.9Ω	0Ω	†1000Ω	†28K	1.2Meg		
V3	12BA6	36Ω	0Ω	1.9Ω	0Ω	†1000Ω	†28K	330Ω		
V4	12AV6	10Meg	0Ω	0Ω	1.9Ω	2Meg	420K	†220K		
V5	12CS6	1Meg	3300Ω	0Ω	1.9Ω	† 1Meg	† 130K	2Meg		
V6	12AU7	†220K	▲ 0Ω	220K	0Ω	1.9Ω	† 3000Ω	▲ 825K	▲ 680Ω	.9Ω
V7	12AQ5	470K	330Ω	1.9Ω	0Ω	†245Ω	†1000Ω	470K		
V8	12AQ5	470K	330Ω	1.9Ω	0Ω	†205Ω	†1000Ω	470K		
V9	12X4	400Ω	NC	1.9Ω	0Ω	NC	400Ω	50K		

† MEASURED FROM PIN 7 OF V9.
▲ MEASURED WITH RELAY (M8) ACTIVATED
NC NO CONNECTION.

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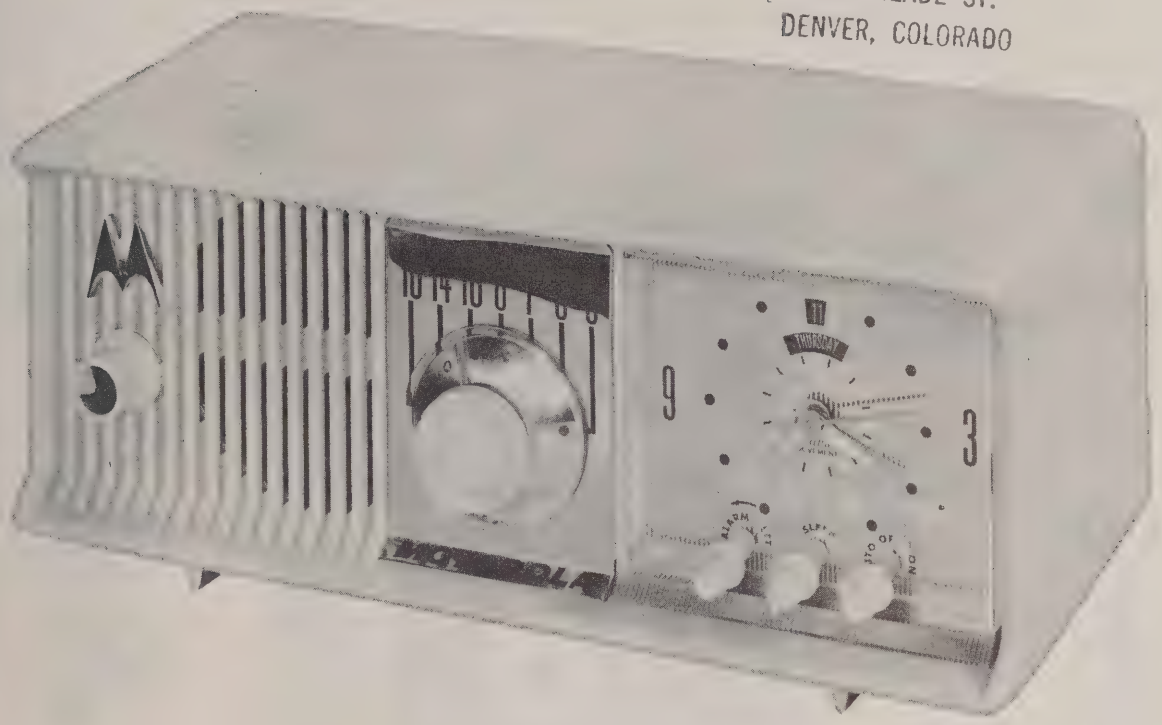
DENVER, COLORADO

MOTOROLA MODELS
57CC1, 57CC2 (Ch. HS-531)



MOTOROLA MODELS
57CC1, 57CC2 (Ch. HS-531)

TRADE NAME	Motorola Models 57CC1, 57CC2 (Ch. HS-531)
MANUFACTURER	Motorola Inc., 4545 W. Augusta Blvd., Chicago 51, Illinois
TYPE SET	AC Operated AM Receiver With Electric Clock
TUBES (Five)	Types 12BE6 Converter, 12BA6 IF Amplifier, 12CR6 Det.-AVC-AF Amp., 50C5 Output, 35W4 Rectifier
POWER SUPPLY	110-120 Volts AC-60 Cycles — RATING .28 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	535KC - 1620KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Loop should be maintained in same relative position to chassis as when receiver is in cabinet.
Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and B-.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 7 (grid) of 12BE6 (V1). Low side to B-.	455KC (400~ Mod.)	Tuning gang fully open.	Across voice coil.	A1, A2 A3, A4	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.	"	"	1620KC	"	"	A5	"
3.		Loop	1400KC	Tune to 1400KC signal.	"	A6	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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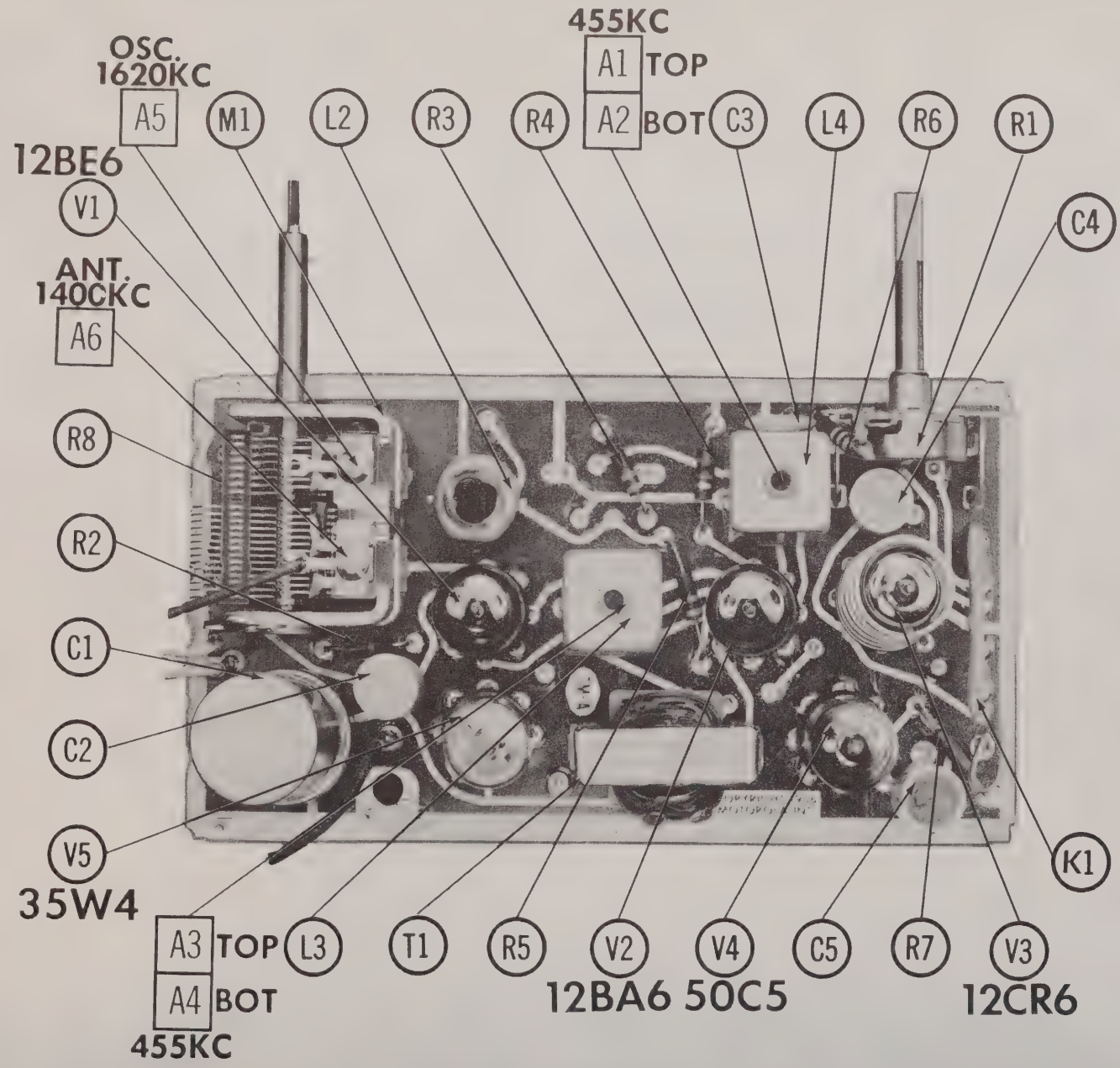


CHASSIS TOP VIEW

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Converter	12BE6	
V2	IF Amplifier	12BA6	
V3	Det. -AVC-AF Amplifier	12CR6	
V4	Output	50C5	
V5	Rectifier	35W4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA MOTOROLA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	■ 50	150	23B632015	AFH2-15	B0150	FP213	TMD-12	D-065	TVL-2432
B	▲ 30	150							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA MOTOROLA PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C2	.05	200	8B120842	BPD-05	DF-503	CUB2S5		ACE615	2SE-S47	
C3	5000		21R121165	BPD-005	DD-502	K080	GP-5000	DC525	5HK-D5	
C4	.05	200	8B120842	BPD-05	DF-503	CUB2S5		ACE615	2SE-S47	
C5	.02	400	8K122301	BPD-02	DD-203	CUB4S2	ED-02	ACE612	4SE-S22	
C6	.047	400	8K490232	BPD-05	DF-503	CUB4S47		GEM-4147	4TM-S47	

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA MOTOROLA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1	500K	½	18K635684					Volume, Tap @ 250K

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA MOTOROLA PART No.	REPLACEMENT DATA IRC PART No.	NOTES
R2	22K		6R6028	BTS-22K	
R3	3.3Meg		6R2118	BTS-3.3Meg	
R4	100Ω		6R6326	BTS-100	
R5	3.3Meg		6R2118	BTS-3.3Meg	
R6	33K		6R6012	BTS-33K	
R7	150Ω		6R3992	BTS-150	
R8	1000Ω	1	6B119404	BTA-1000	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA MOTOROLA PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	2800Ω	3-4Ω	25B635932	Z1101 ①	A-3025 ①	A-3332 ①	26S58 ①	S-12X ①	① Use Original Frame

PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA MOTOROLA PART No.	REPLACEMENT DATA QUAM PART No.	NOTES
SP1	4"	PM	3-4Ω	50C635931	4A07	

COILS (RF-IF)

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA MOTOROLA PART No.	REPLACEMENT DATA MEISSNER PART No.	REPLACEMENT DATA MERIT PART No.	REPLACEMENT DATA MILLER PART No.	NOTES
L1	Loop Ant.	2.8Ω		1V635938				Includes Cabinet Back
L2	Osc. Coil	1.1Ω	11Ω	24B631990				
L3	Input If	14Ω		24K632782				
L4	Output IF	13Ω	12Ω	24K632039	16-6780		13-PC2	

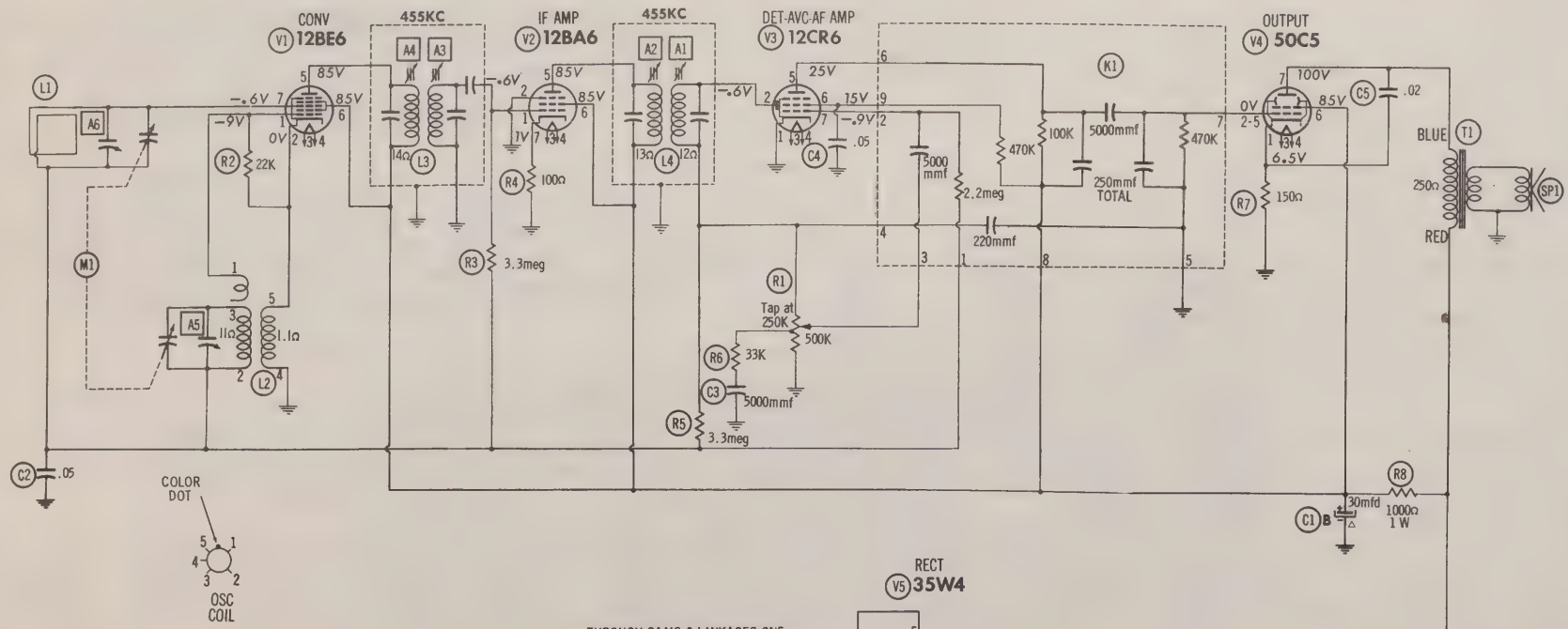
COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION		MOTOROLA PART No.	REPLACEMENT DATA	
K1	Det. -Audio Net.	500mmf	2.2Meg	51B635924	Aerovox	PA 624
		5000mmf	470K			
		250mmf	470K			
		220mmf	100K			

MISCELLANEOUS

ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
M1	Tuning Cap.	19C633694	2 Gang
M2	Clock Assembly	72D633657	
	Cabinet	1V635960	Model 57CC1
	Cabinet	1V635961	Model 57CC2
	Crystal, Clock	61C633656	
	Knob	36K634306	Clock, White
	Knob	36C633661	Pointer
	Knob	36K633678	Tuning Model 57CC1
	Knob	36K633677	Tuning Model 57CC2
	Knob	36K633683	Volume Model 57CC1
	Knob	36K633682	Volume Model 57CC2

MOTOROLA MODEL 57CC1 (Ch. HS-531)



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	12BE6	22K	1.1Ω	25Ω	12Ω	†1000Ω	†1000Ω	3.8Meg
V2	12BA6	7Meg	0Ω	25Ω	37Ω	†1000Ω	†1000Ω	100Ω
V3	12CR6	0Ω	500K	0Ω	12Ω	†100K	†470K	6Meg
V4	50C5	150Ω	470K	37Ω	85Ω	470K	†1000Ω	†250Ω
V5	35W4	NC	NC	85Ω	120Ω	120Ω	115Ω	10K

† MEASURED FROM PIN 7 OF V5.
NC NO CONNECTION.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

MOTOROLA MODELS
57X1, 57X2 (Ch. HS-524)

MOTOROLA MODELS
57X1, 57X2 (Ch. HS-524)

TRADE NAME	Motorola Models 57X1, 57X2 (Ch. HS-524)
MANUFACTURER	Motorola Inc., 4545 W. Augusta Blvd., Chicago 51, Ill.
TYPE SET	AC-DC Operated AM Receiver
TUBES (Five)	Types 12BE6 Converter, 12BA6 IF Amplifier, 12CR6 Det-AVC-AF Amp., 50C5 Output, 35W4 Rectifier
POWER SUPPLY	110-120 Volts AC-DC RATING .31 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	530KC - 1620KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Loop should be maintained in same relative position to chassis as when receiver is in cabinet.
Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and B-.
To set pointer, turn tuning capacitor fully closed and set pointer to last reference mark at low frequency end of dial.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 7 (grid) of 12BE6 (V1). Low side to B-.	455KC (400~ Mod)	Tuning gang fully open.	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.	"	"	1620KC	"	"	A5	"
3.		Loop	1400KC	Tune to 1400KC signal.	"	A6	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed." "Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. Copyright 1957 by Howard W. Sams & Co., Inc., Indianapolis 5, Indiana, U. S. of America. Copyright under international Copyright Union. All rights reserved under Inter-American Copyright Union (1910) by Howard W. Sams & Co., Inc." Printed in U. S. of America

PARTS LIST AND DESCRIPTIONS

MOTOROLA
MODEL 57X1 (Ch. HS-524)

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Converter	12BE6	
V2	IF Amplifier	12BA6	
V3	Det-AVC-AF Amp.	12CR6	

ITEM No.	USE	TYPE	NOTES
V4	Output	50C5	
V5	Rectifier	35W4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	MOTOROLA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	40	150	23B634167	PRS150V4030	BBRT43215	TCT3285	TDLT-3	FMT-312	TVA-3448
B	30	150		20					
C	30	150							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	MOTOROLA PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2	100		21R400537	N750-SI 100	TCN-100	C10T1U	TC7-100	NT-531	5TCU-T1	
C3	.05	200	8R121005	BPD-05	DF-503	CUB2S5		GEM-215	2TM-S5	
C4	.006	400	8R121001	BPD-006	D6-602	CUB6D6		GEM-626	4TM-D6	
C5	.006	400	8R121001	BPD-006	D6-602	CUB6D6		GEM-626	4TM-D6	
C6	100		21R400537	N750-SI 100	TCN-100	C10T1U	TC7-100	NT-531	5TCU-T1	
C7	.05	400	8R121567	BPD-05	DF-503	CUB4S5		GEM-415	4TM-S5	
C8	.01	200	8R121868	BPD-01	DD-103	CUB4S1	GP-10000	GEM-411	2TM-S1	
C9	10000		21R121946	BPD-01	DD-103	BYA6S1	GP-10000	DC511	5HK-S1	
C10	.047	400	8K490232	BPD-05	DF-503	CUB4S47		GEM-4147	4TM-S47	
C11	.1	600	8R121869	P688N-1	DF-104	CUB6P1		GEM-601	6TM-P1	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	MOTOROLA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	500K	½	18K635629	BT-65	A47F5-500K	Q19-133X	UT-431	Volume, Tap@ 250K
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
C	Switch			KB-1	SWE-12	76-1	US-26	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

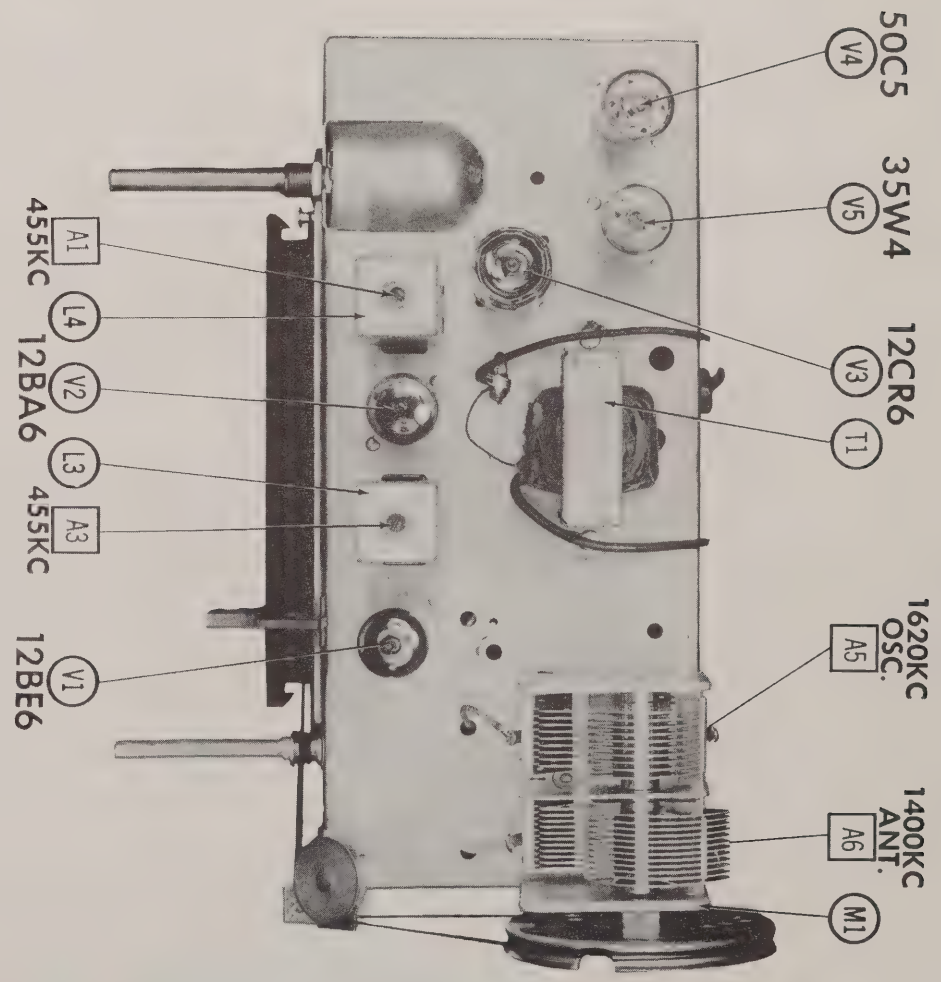
ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	MOTOROLA PART No.	IRC PART No.	
R2	470K		6R6032	BTS-470K	
R3	22K		6R6028	BTS-22K	
R4	2.2Meg		6R3927	BTS-2.2Meg	
R5	82Ω		6R2035	BTS-82	
R6	39K		6R6487	BTS-39K	
R7	2.2Meg		6R3927	BTS-2.2Meg	
R8	100K		6R6075	BTS-100K	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	MOTOROLA PART No.	IRC PART No.	
R9	470K		6R6032	BTS-470K	
R10	470K		6R6032	BTS-470K	
R11	150Ω		6R6373	BTS-150	
R12	390Ω	1	6R5598	BTA-390	
R13	390Ω	1	6R5598	BTA-390	
R14	15Ω		6R2034	BTS-15	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	MOTOROLA PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	2700Ω	3-4Ω	25C634161	Z1001	A-3025	A-3876	24S45	S-1X	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

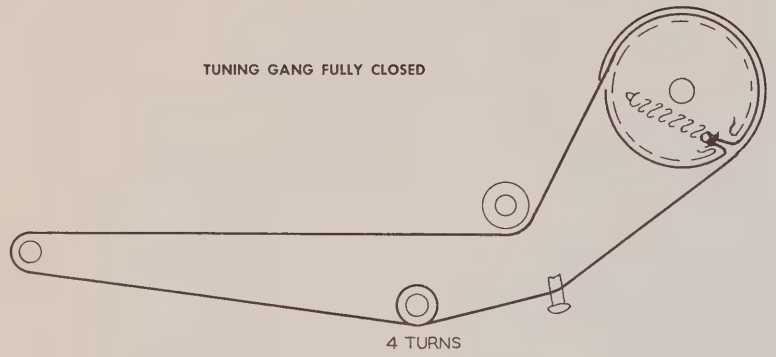
ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	MOTOROLA PART No.	QUAM PART No.	
SP1	4"	PM	3-4Ω	50K634456	4A07	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		MOTOROLA PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Loop Ant.	24K635635				Part of cabinet back.
L2	Osc. Coil	24B634118			69-Osc.	
L3	Input IF	24C632774	16-6758	BC-352	12-C1	
L4	Output IF	24K632775	16-6770	BC-355	12-C6	

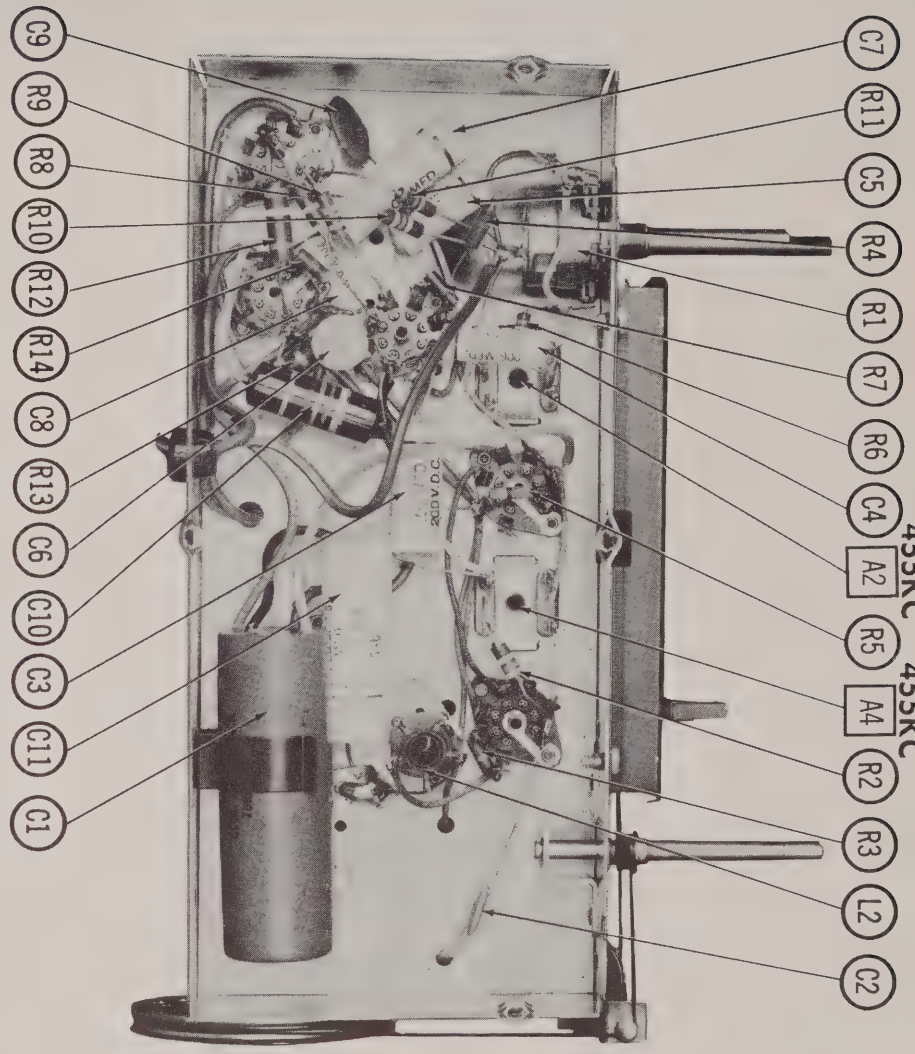
MISCELLANEOUS

ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
M1	Tuning Cap.	19B634158	Two Gang (16-390MMF, 24-145MMF)
	Pointer	52K634509	Dial
	Bezel	13K634073	Dial
	Knob	36D634193	Tuning
	Knob	36K634195	On-Off-Volume

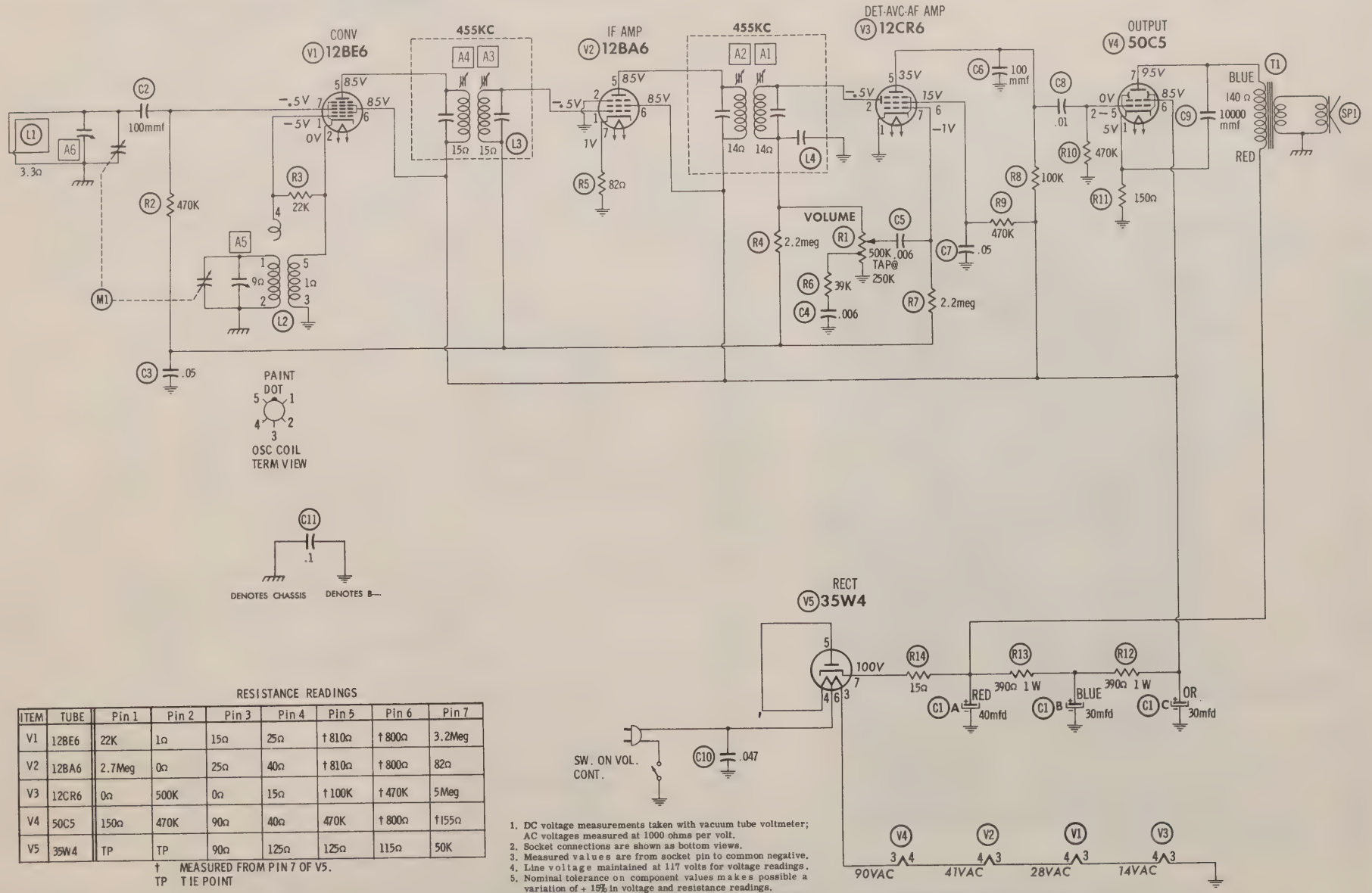


DIAL CORD STRINGING

CHASSIS—BOTTOM VIEW



MOTOROLA
MODEL 57XI (Ch. HS-524)



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	12BE6	22K	1Ω	15Ω	25Ω	†810Ω	†800Ω	3.2Meg
V2	12BA6	2.7Meg	0Ω	25Ω	40Ω	†810Ω	†800Ω	82Ω
V3	12CR6	0Ω	500K	0Ω	15Ω	†100K	†470K	5Meg
V4	50C5	150Ω	470K	90Ω	40Ω	470K	†800Ω	†155Ω
V5	35W4	TP	TP	90Ω	125Ω	125Ω	115Ω	50K

† MEASURED FROM PIN 7 OF V5.
TP TIE POINT

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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PHILCO MODELS E-740, E-742, E-808, E-810, E-812, E-814, E-816

PROPERTY OF
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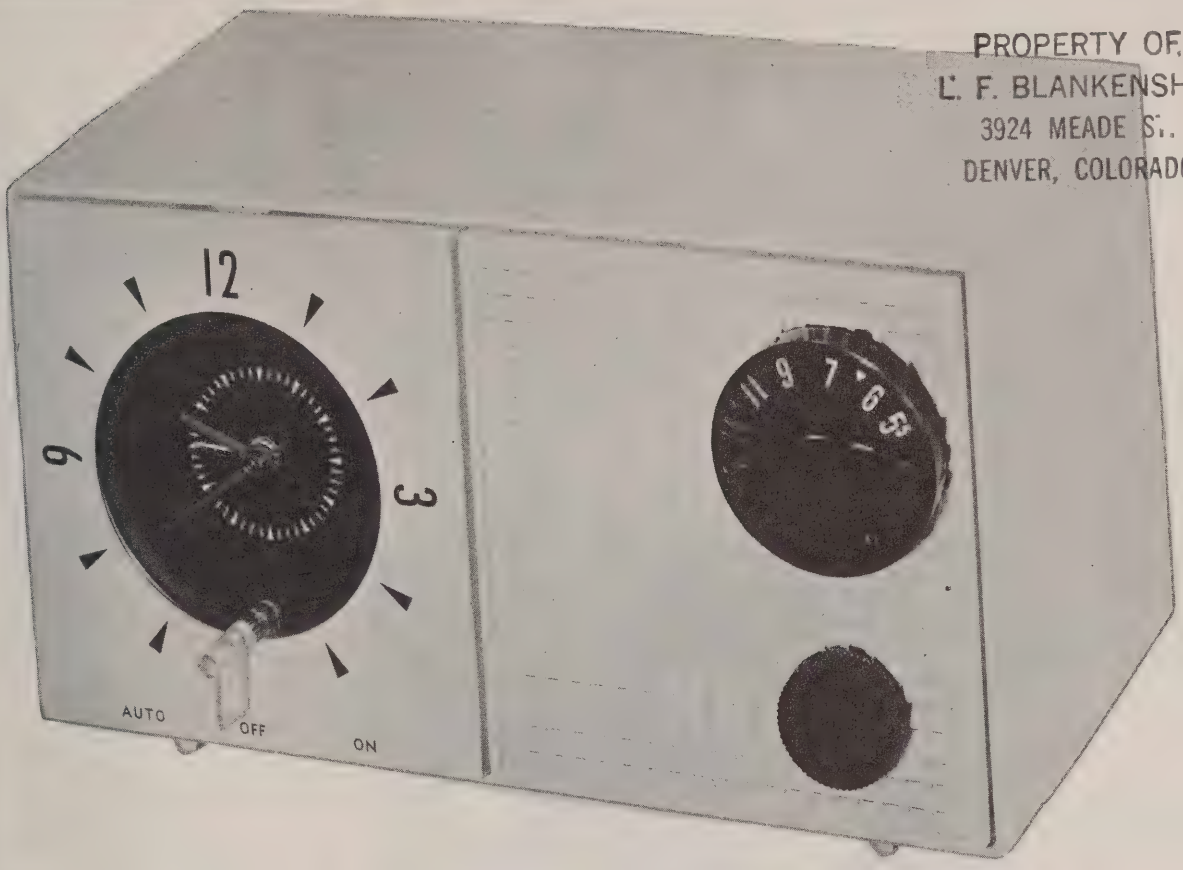
DENVER, COLORADO

PHILCO MODELS E-740, E-742, E-808, E-810, E-812, E-814, E-816



PHILCO MODELS E-740, E-742, E-808, E-810, E-812, E-814, E-816

TRADE NAME	Philco Models E-740, E-742 (Clock Models); E-808, E-810, E-812, E-814, E-816
MANUFACTURER	Philco Corp., Tioga & "C" Sts., Philadelphia, Pa.
TYPE SET	AC Operated AM Receiver With Electric Clock
TUBES (Five)	Types 12BE6 Converter, 12BA6 IF Amplifier, 12AV6 Det-AVC-AF Amp., 50C5 Output, 35W4 Rectifier
POWER SUPPLY	105-120 Volts AC - 60 Cycles (Clock Models) RATING .27 Amp. @ 117 Volts AC 105-120 Volts AC-DC (Other Models)
TUNING RANGE—BROADCAST	540KC - 1620KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and B-.
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Loop should be maintained in same relative position to chassis as when receiver is in cabinet.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 7 (grid) of 12BE6 (V1). Low side to B-.	455KC (400~ Mod)	Tuning gang fully open.	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.		Loop	1620KC	Insert a .006" non-metallic shim between top of stator plates and heel of rotor. Close gang enough to hold shim. Remove shim without disturbing gang setting.	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		"	1500KC	Tune to 1500KC signal.	"	A6	"

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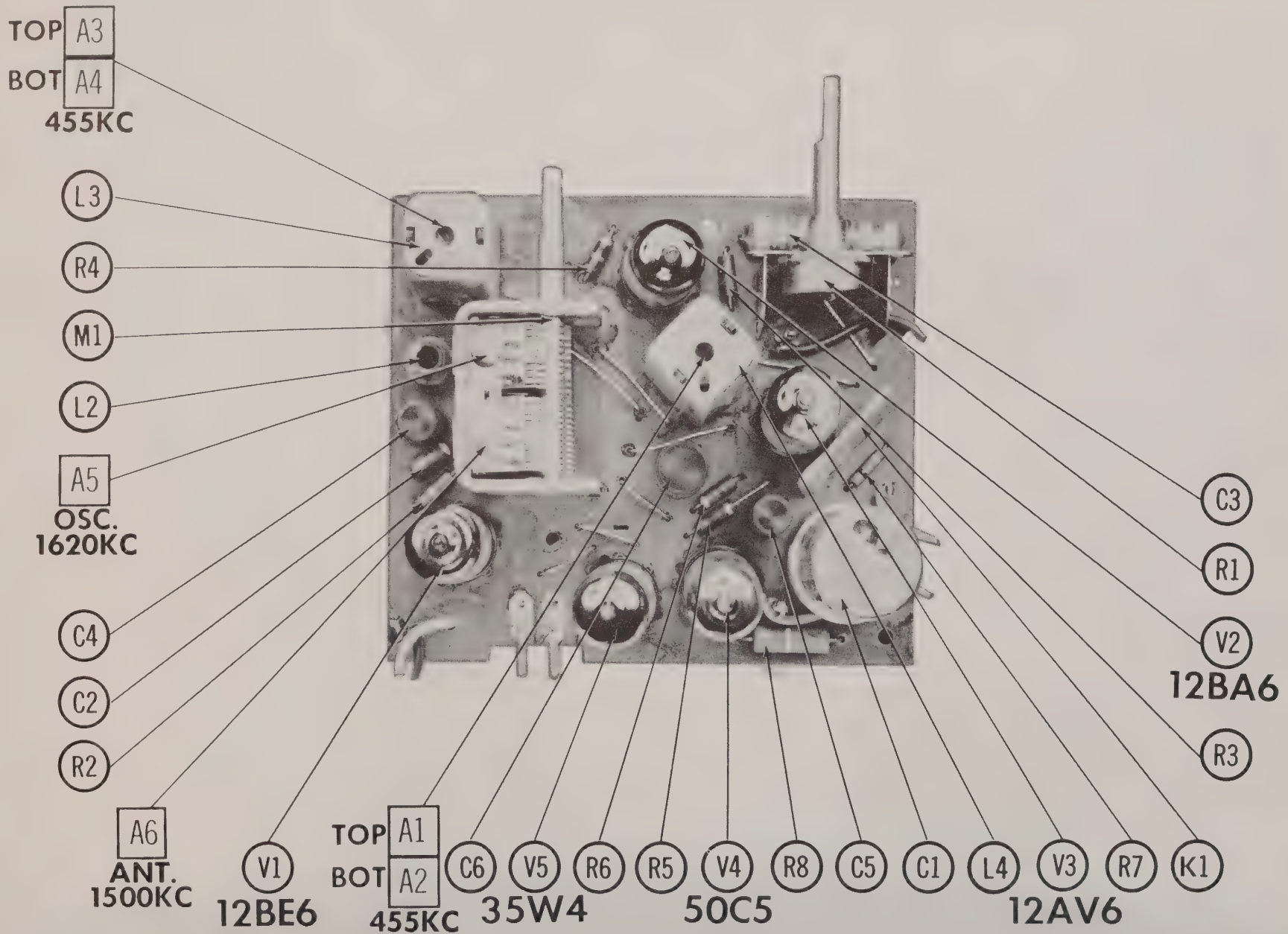


CHASSIS-TOP VIEW

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Converter	12BE6	
V2	IF Amplifier	12BA6	
V3	Det-AVC-AF Amp.	12AV6	

ITEM No.	USE	TYPE	NOTES
V4	Output	50C5	
V5	Rectifier	35W4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA PHILCO PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	30	150	30-2585-2	AFH3-08	CO080	FP311.4	TMD-9	T-035	TVL-3438
B	▲25	150					TD-30-150		
C	■20	150							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA PHILCO PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C2	7.5		30-1224-13							
C3	.047	400	30-4650-45	BPD-05	DF-503	CUB4S47		GEM-4147	4TM-S47	
C4	.01	400	30-4685-41	BPD-01	D6-103	K082		ACE611	4SE-S1	
C5	.01	400	30-4685-41	BPD-01	D6-103	K082		ACE611	4SE-S1	
C6	.047	400	30-4685-45	BPD-05	DF-503			ACE6147	4SE-S47	

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA PHILCO PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1	500K	½	335575-8					Volume (Note 1)

Note 1: Part #33-5575-8 used in models E-740, E-742.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA PHILCO PART No.	REPLACEMENT DATA IRC PART No.	NOTES
R2	22K		66-3228340	BTS-22K	
R3	2.2Meg		66-5228340	BTS-2.2Meg	
R4	68Ω		66-0688340	BTS-68	
R5	150Ω		66-1158340	BTS-150	

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA PHILCO PART No.	REPLACEMENT DATA IRC PART No.	NOTES
R6	150Ω		66-1158340	BTS-150	
R7	1000Ω		66-2108340	BTS-1000	
R8	220Ω	1	66-1224340	BTA-220	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA PHILCO PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	2400Ω	3-4Ω	32-8384-2 ①	Z1101	A-3025	A-3332	26S58	S-12X	① Models E-740, E-742, E-808, E-810, E-812, E-814. ② Model E-816. ③ Bend ears.
	2700Ω	3-4Ω	322-0054 ②	Z1101 ③	A-3025③	A-3332③	26S58 ③	S-12X ③	

PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA PHILCO PART No.	REPLACEMENT DATA QUAM PART No.	NOTES
SP1	4"	PM	3-4Ω	36-1655 ①③ 45-9727 ②		① Used in models E-740, E-742, E-808, E-810, E-812, E-814. ② (2 used) Model 816. ③ Alternate part #36-1654.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA PHILCO PART No.	REPLACEMENT DATA MEISSNER PART No.	REPLACEMENT DATA MERIT PART No.	REPLACEMENT DATA MILLER PART No.	NOTES
L1	Loop Ant.	76-11130-1				Includes cabinet back (Note 1)
L2	Osc. Coil	32-4693-1				
L3	Input IF	32-4583-10	16-6780	BC-356	13-PC1	
L4	Output IF	32-4583-11	16-6780	BC-357	13-PC2	

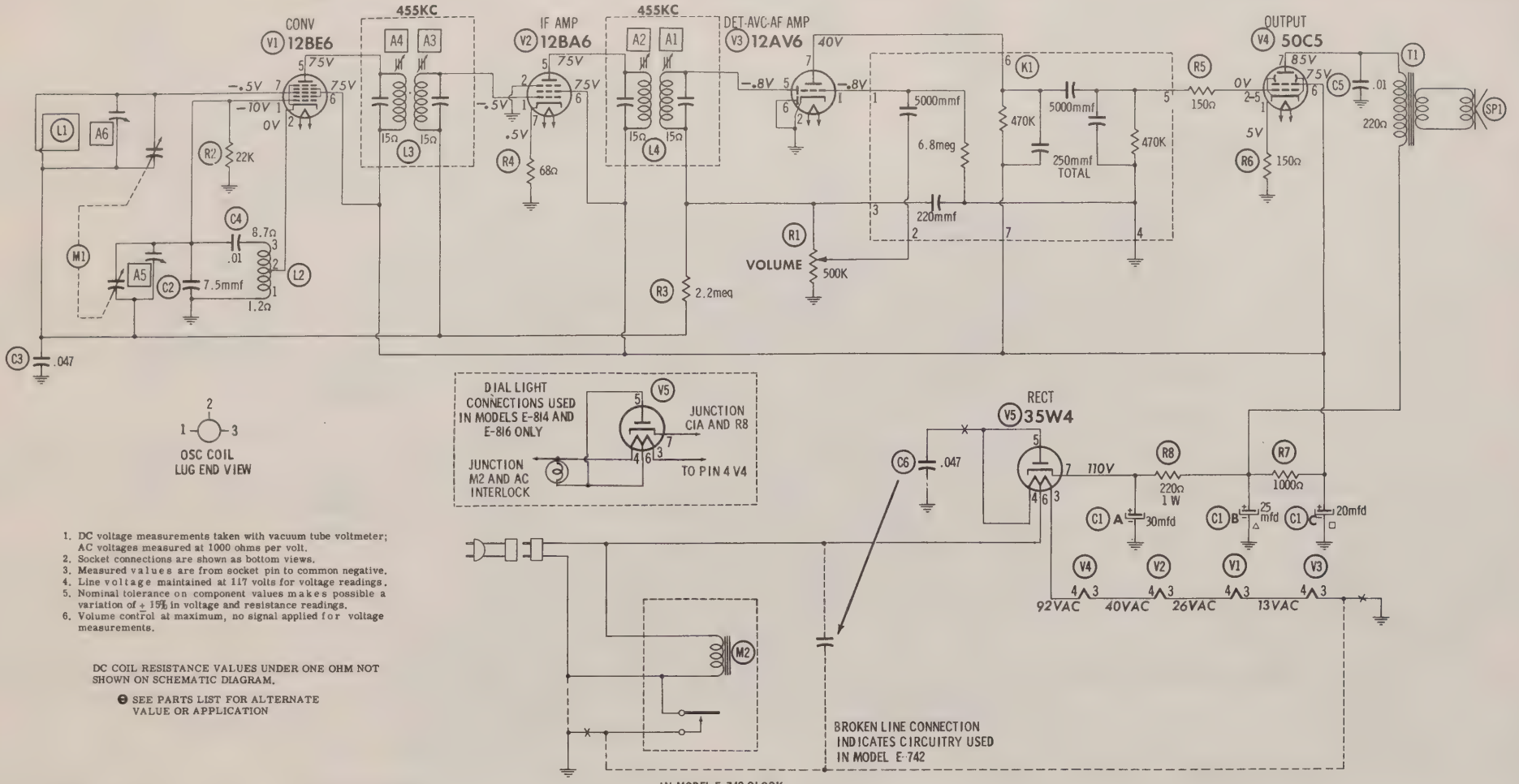
Note 1: Part #76-11130-2 used in model E-742.
Part #76-11127-1 used in models E-808, E-810.
Part #76-11145-1 used in model E-812.
Part #76-11176-1 used in model E-814.
Part #76-11151-1 used in model E-816.

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	PHILCO PART No.	REPLACEMENT DATA	
K1	Det.-Audio Net.	220MMF, 250MMF, 5000MMF, 5000MMF, 6.8Meg, 470K, 470K	30-6006-1	Aerovox Centralab Sprague	PA-512 PCT-158 DT-5

MISCELLANEOUS

ITEM No.	PART NAME	PHILCO PART No.	NOTES
M1	Tuning Cap.	31-2783-1	Two Gang
M2	Clock	41-2066-1	Model E-740.
	Clock	41-2066-2	Model E-742.
	Cabinet	11192	Model E-740.
	Cabinet	11192-1	Lustre Ivory, Model E-742.
	Cabinet	11192-2	Pink, Model E-742.
	Cabinet	11189	Model E-808.
	Cabinet	11189-1	Lustre Ivory, Model E-810.
	Cabinet	11189-2	Pink, Model E-810.
	Cabinet	11190-1	Aztec Gold, Model E-812.
	Cabinet	11190	Spice, Model E-812.
	Cabinet	11198-3	Emerald, Model E-814.
	Cabinet	11198	Flame, Model E-814.
	Cabinet	11198-2	Lustre Ivory, Model E-814.
	Cabinet	11198-1	Mahogany, Model E-814.
	Cabinet	11191	Lustre Ivory, Model E-816.
	Cabinet	11191-1	Turquoise, Model E-816.
	Knob	54-6289-4	Clock, Model E-740.
	Knob	54-6287-1	Tuning, Model E-740.
	Knob	54-6016-22	Volume, Model E-740.
	Knob	54-6289-3	Clock (2 used), Model E-742.
	Knob	54-6292-1	Tuning, Model E-742.
	Knob	54-6016-23	Volume, (Lustre Ivory), Model E-742.
	Knob	54-6016-22	Volume, (Pink), Model E-742.
	Knob	54-6283-1	Tuning, Models E-808, E-810.
	Knob	54-6313-2	Volume, Models E-808, E-810.
	Knob	54-6220-4	Tuning, Model E-812.
	Knob	54-6035-6	Volume, Model E-812.
	Knob	54-6282-2	Tuning, Model E-814.
	Knob	54-6313-1	Volume, Model E-814.
	Knob	54-6282-1	Tuning, Model E-816.
	Knob	54-4986-4	Volume, Model E-816.
	Crystal	54-6286-1	Clock, Model E-740.
	Crystal	54-6290-1	Clock, Model E-742.
	Board	54-6280	Printed. All Models Except E-742.
	Board	54-6280-1	Printed. Model E-742.



OSC COIL
LUG END VIEW

DIAL LIGHT CONNECTIONS USED IN MODELS E-814 AND E-816 ONLY

JUNCTION C1A AND R8

JUNCTION M2 AND AC INTERLOCK

TO PIN 4 V4

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.

❶ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

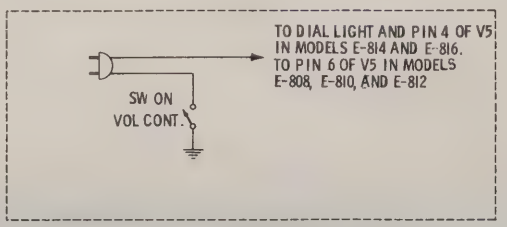
BROKEN LINE CONNECTION INDICATES CIRCUITRY USED IN MODEL E-742

IN MODEL E-742 CLOCK MECHANISM INCLUDES SLEEP FUNCTION AND BUZZER ALARM.

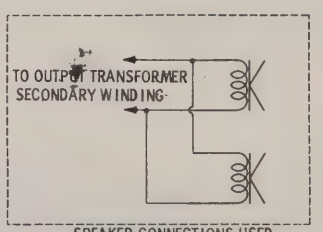
RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	12BE6	22K	1.2Ω	12Ω	25Ω	†1200Ω	†1200Ω	2.7Meg
V2	12BA6	2.7Meg	0Ω	25Ω	37Ω	†1200Ω	†1200Ω	68Ω
V3	12AV6	6.8Meg	0Ω	0Ω	12Ω	500K	0Ω	†470K
V4	50C5	150Ω	470K	37Ω	85Ω	470K	†1200Ω	†440Ω
V5	35W4	TP	TP	85Ω	120Ω	120Ω	115Ω	20K

† MEASURED FROM PIN 7 OF V5.
TP TIE POINT



ALT. A.C. INPUT CIRCUIT USED IN MODELS INDICATED.



SPEAKER CONNECTIONS USED IN MODEL E-816

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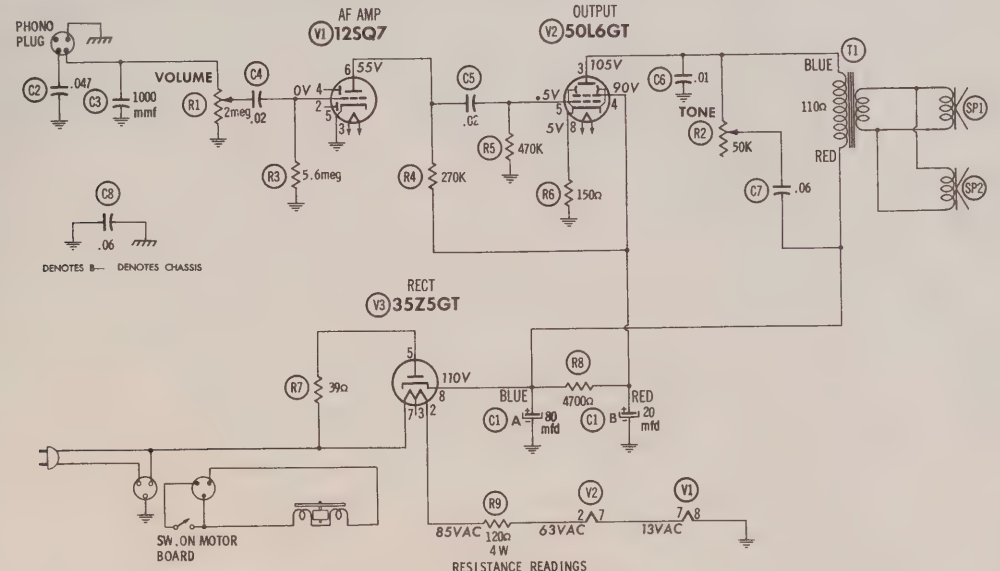
PROPERTY OF
E. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

RCA VICTOR MODELS 6-ES-5,
7-ES-6H, 7-ES-6J (Ch. RS-157, A)

TRADE NAME	RCA Victor Models 6-ES-5 (Ch. RS-157), 7-ES-6H, 7-ES-6J (Ch. RS-157A)
MANUFACTURER	RCA Victor Radio & "Victrola" Div., Radio Corp. of America, Camden 8, N. J.
TYPE SET	AC Operated Phono Amplifier With Automatic Record Changer
TUBES (Three)	Types 12SQ7 AF Amplifier, 50L6GT Output, 35Z5GT Rectifier
POWER SUPPLY	110-120 Volts AC - 60 Cycles RATING .23 Amp. @ 117 Volts AC

FOR SERVICE INFORMATION ON 3 SPEED RECORD CHANGER RP-198-5A USED IN MODEL 6-ES-5 -- SEE RCA RP-198 -- PHOTOFACT SET 273 FOLDER 9 OR RECORD CHANGER MANUAL CM-7.
MODELS 7-ES-6H & 7-ES-6J USE 4 SPEED RECORD CHANGER MODEL RP-205B-1.



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V1	12SQ7	0Ω	5.6Meg	0Ω	NC	NC	†275K	12Ω	0Ω
V2	50L6GT	NC	60Ω	†110Ω	†4700Ω	470K	NC	12Ω	150Ω
V3	35Z5GT	NC	180Ω	190Ω	NC	255Ω	NC	215Ω	30K

† MEASURED FROM PIN 8 OF V3.
NC NO CONNECTION

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PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	AF Amplifier	12SQ7	
V2	Output	50L6GT	
V3	Rectifier	35Z5GT	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	RCA Victor PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	80	150	101752	PRS150V4040	BBRT44215	TCT3116	TML-1	CST-524	TVA-2460
B	20	150		20					

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	RCA Victor PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C2	.047	200	73553	BPD-05	DF-503	CUE2S47		PT4147	2TM-S47	
C3	1000		75249	SI 1000	D6-102	TP52	GP2L-102	UC-521	5HK-D1	
C4	.02	200	71928	BPD-02	DD-203	CUB2S2	817-02	PT412	2TM-S2	
C5	.02	200	71928	BPD-02	DD-203	CUB2S2	817-02	PT412	2TM-S2	
C6	.01	400	73561	BPD-01	D6-103	CUB4S1	GP3-333-103	PT411	4TM-S1	
C7	.06	200	73791	P688N-06		CUB6S6		PT616	6TM-S6	
C8	.06	400	73791	P688N-06		CUB6S6		PT616	6TM-S6	

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	RCA Victor PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1	2Meg	½	101755					Volume
R2	50K	½	101756					Tone

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	RCA Victor PART No.	IRC PART No.	NOTES
R3	5.6Meg		31455	BTS-5.6Meg	
R4	270K		502427	BTS-270K	
R5	470K		502447	BTS-470K	
R6	150Ω		502115	BTS-150	
R7	39Ω		512039	BTS-39	
R8	4700Ω		502247	BTS-4700	
R9	120Ω	4	101757		

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	RCA Victor PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	2800Ω	1.75Ω	100272						

SPEAKER

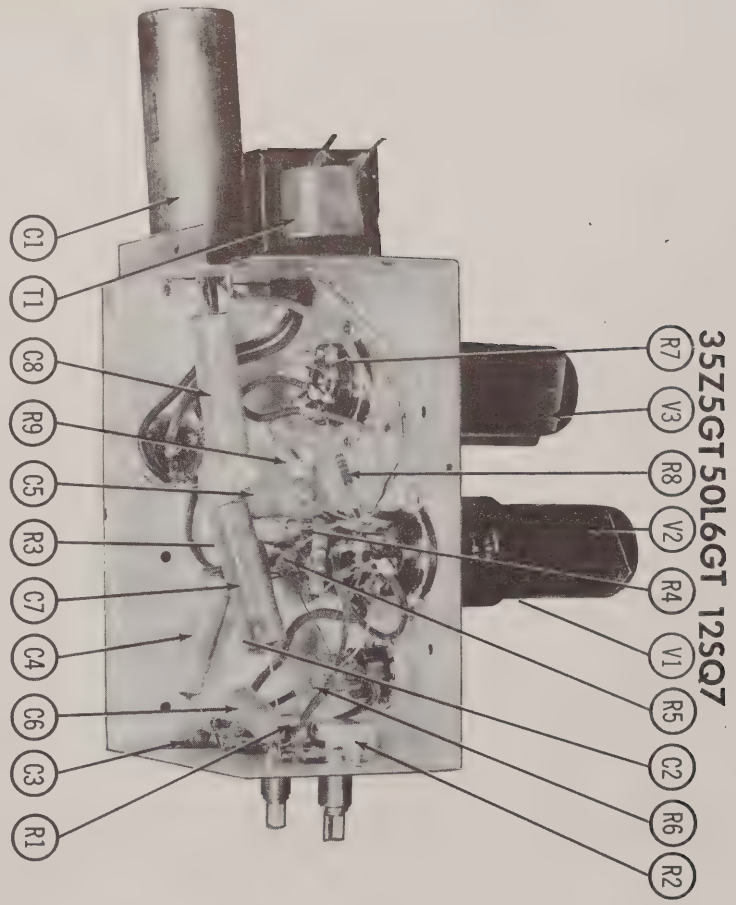
ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	RCA Victor PART No.	QUAM PART No.	NOTES
SP1	4"	PM	3-4Ω	79696	4A07	
SP2	4"	PM	3-4Ω	79696	4A07	

PHONO CARTRIDGE

ITEM No.	RCA Victor PART No.	ASTATIC PART No. CARTRIDGE	ASTATIC PART No. NEEDLE	ELECTRO-VOICE PART No. CARTRIDGE	ELECTRO-VOICE PART No. MOUNT	REMARKS
M1	100653	55-T	GD-J	56	PT-2	

ASTATIC NEEDLE LISTING SHOWN ABOVE IS SPECIFIED FOR THE RESPECTIVE REPLACEMENT CARTRIDGE LISTED. FOR ORIGINAL CARTRIDGE NEEDLE REPLACEMENTS SEE BELOW.

CHASSIS—BOTTOM VIEW



PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	RCA Victor PART No.	JENSEN PART No.	WALCO PART No.	REMARKS
M2	78827	*S-67 or †S-66 or ♦†S-66SD or ♦S-66D	†W-75TPS or ♦†W-75DS or ♦W-75TPD	* Metal † Jewel ♦ Diamond

MISCELLANEOUS

ITEM No.	PART NAME	RCA Victor PART No.	NOTES
	Handle	101759	Model 6-ES-5.
	Handle	100259	Models 7-ES-6H, 7-ES-6J.
	Knob	101765	Control (2 used) Model 6-ES-5.
	Knob	103413	Control (2 used) Model 7-ES-6H.
	Knob	103414	Control (2 used) Model 7-ES-6J.

PROPERTY OF
C. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

SILVERTONE MODELS
7045, 7046 (Ch. 528.47200)

SILVERTONE MODELS
7045, 7046 (Ch. 528.47200)

TRADE NAME	Silvertone Models 7045, 7046 (Ch. 528.47200)
SUPPLIER	Sears Roebuck & Co., 925 S. Homan, Chicago, Ill.
TYPE SET	AC Operated AM Receiver With 4 Speed Automatic Record Changer
TUBES (Six)	Types 12BE6 Converter, 12BA6 IF Amplifier, 12CR6 Det.-AVC-AF Amp., 12AT6 Phase Inverter, (2) 35C5 Output
POWER SUPPLY	110-120 Volts AC-60 Cycles RATING .36 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	535KC-1630KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Loop should be maintained in same relative position to chassis as when receiver is in cabinet.
Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and B-.
To set pointer, turn tuning capacitor fully closed and set pointer to last reference mark at low frequency end of dial.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 7 (grid) of 12BE6 (V1). Low side to B-.	455KC (400~Mod)	Tuning gang fully open	Across voice coil	A1, A2, A3, A4	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.	"	"	1630KC	"	"	A5	"
3.		Loop	1400KC	Tune to 1400KC signal	"	A6	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

FOR SERVICE INFORMATION ON RECORD CHANGER 567.41000 or 567.41100 - SEE SIMILAR CRESCENT 500 SERIES - PHOTOFACT SET 197 - FOLDER 4 OR RECORD CHANGER MANUAL CM-5.

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PARTS LIST AND DESCRIPTIONS

SILVERTONE
MODEL 7045 (Ch. 528.47200)

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Converter	12BE6	
V2	IF Amplifier	12BA6	
V3	Det.-AVC-AF Amplifier	12CR6	
V4	Phase Inverter	12AT6	
V5	Output	35C5	
V6	Output	35C5	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA SILVERTONE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	■70	150	18-9-4	AFH3-09	CO080	FP211	TMD-12	T-040	
B	▲30	150				TC48	TD-20-150		

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA SILVERTONE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C2	.05	200	16-50323	BPD-05	DF-503	CUB2S5		GEM-215	2TM-S5	
C3	47		15-47016	BPD-000047	DD-470	L10Q47	ED-47	UC-5447	5GA-Q47	
C4	.05	200	16-50323	BPD-05	DF-503	CUB2S5		GEM-215	2TM-S5	
C5	.05	400	16-50343	BPD-05	DF-503	CUB4S5		GEM-415	4TM-S5	
C6	.05	200	16-50323	BPD-05	DF-503	CUB2S5		GEM-215	2TM-S5	
C7	150		15-15116	BPD-00015	DD-151	L10T15	ED-150	UC-5315	5GA-T15	
C8	.022	400	16-22343	BPD-02	DD-203	CUB4S22	ED-02	GEM-4122	4TM-S22	
C9	82		15-820114	N750-SI 82	TCN-82	C10Q82U	TC7-82			
C10	.01	400	16-10343	BPD-01	DD-103	CUB4S1	GP-10000	GEM-411	4TM-S1	
C11	.001	600	16-10253	BPD-001	DD-102	CUB6D1	GP-1000	GEM-621	6TM-D1	
C12	.001	600	16-10253	BPD-001	DD-102	CUB6D1	GP-1000	GEM-621	6TM-D1	
C13	.2	200	16-20423	P288N-2		CUB2P2		GEM-202	2TM-P2	Note 1
C14	10000		15-10316	BPD-01	DD-103	BYA6S1	GP-10000	DC511	5HK-S1	
C15	10000		15-10316	BPD-01	DD-103	BYA6S1	GP-10000	DC511	5HK-S1	
C16	.001	600	16-10253	BPD-001	DD-102	CUB6D1	GP-1000	GEM-621	6TM-D1	
C17	.001	600	16-10253	BPD-001	DD-102	CUB6D1	GP-1000	GEM-621	6TM-D1	
C18	.047	400	20-447-1	BPD-05	DF-503	CUB4S47		GEM-4147	4TM-S47	
C19	.05	400	16-50343	BPD-05	DF-503	CUB4S5		GEM-415	4TM-S5	
C20	.05	400	16-50343	BPD-05	DF-503	CUB4S5		GEM-415	4TM-S5	

Note 1. Early versions use .1MFD in this application (part #16-10423).

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA SILVERTONE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1Meg	½	24-244	BT-7417-S	A47F3-1Meg	Q18-137X	UT440	Volume - Tap @ 100K
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
C	Switch			Not Req.	SWE-12	76-1	US-26	
R2A	500K	½	24-242	B-60	A47-500K-Z	Q13-137	U48	Bass
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R3A	500K	½	24-242	B-60	A47-500K-Z	Q13-137	U48	Treble
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	

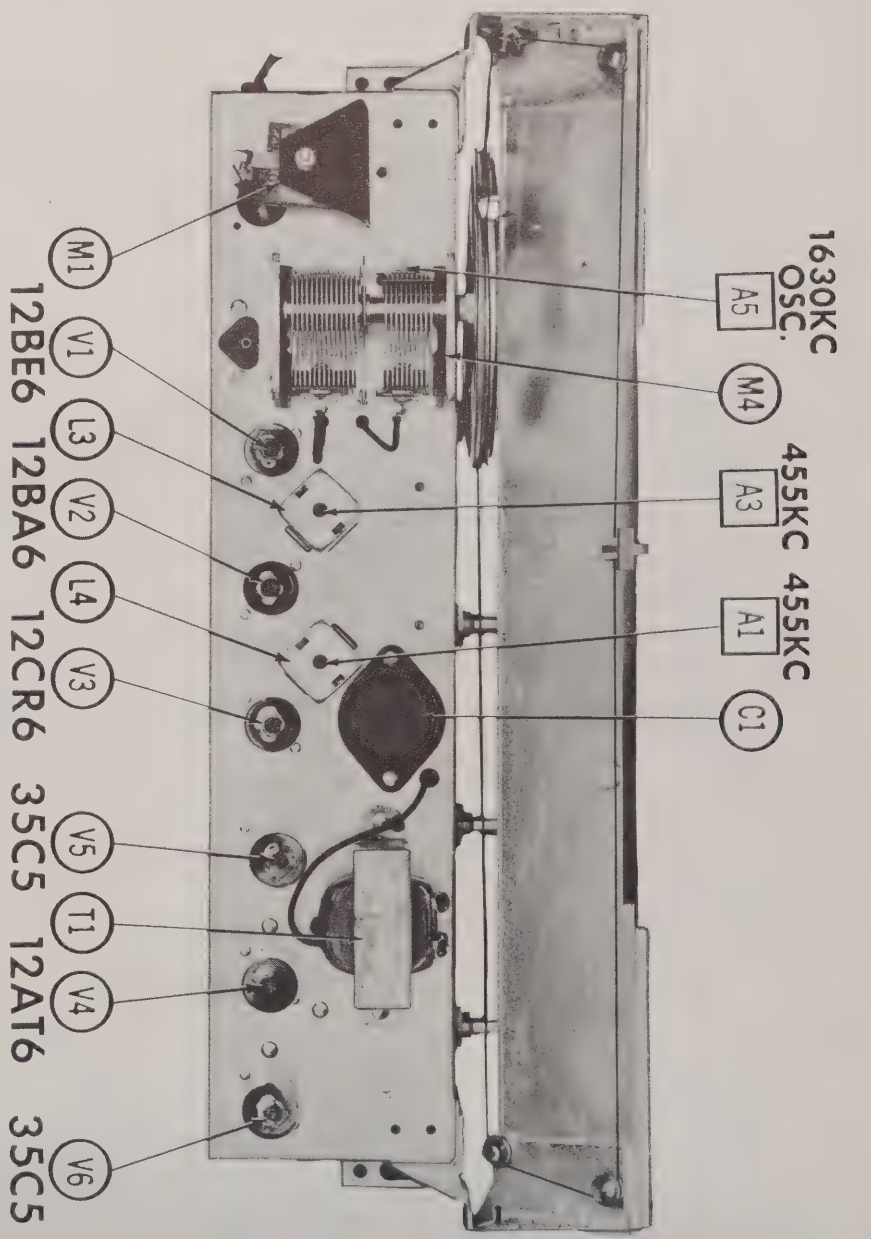
RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA SILVERTONE PART No.	IRC PART No.	NOTES
R4	22K		60-22301	BTS-22K	
R5	150Ω		60-15101	BTS-150	
R6	2.2Meg		60-22502	BTS-2.2Meg	
R7	47K		60-47301	BTS-47K	
R8	22K		60-22301	BTS-22K	
R9	10Meg		60-10602	BTS-10Meg	
R10	180K		60-18401	BTS-180K	Note 1
R11	820K		60-82401	BTS-820K	
R12	100K		60-10401	BTS-100K	
R13	10Meg		60-10602	BTS-10Meg	
R14	220K		60-22401	BTS-220K	
R15	220K		60-22401	BTS-220K	
R16	220K		60-22401	BTS-220K	
R17	220K		60-22401	BTS-220K	
R18	100Ω		60-10101	BTS-100	
R19	220K		60-22401	BTS-220K	
R20	1200Ω	1	60-12211	BTA-1200	
R21	33Ω	3	61-10		

Note 1. 220K used in early versions (Part #60-22401).

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA: SILVERTONE PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	6800Ω CT	6-8Ω	80-388	Z1002	A-2901	A-3823	24S61	S-53X	

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA: SILVERTONE PART No.	QUAM PART No.	NOTES
SP1	6"	PM	3-4Ω	79-417 ①	6A15 ①	① Connect in series and phase
SP2	6"	PM	3-4Ω	79-417 ①	6A15 ①	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA: SILVERTONE PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	NOTES
L1	Loop Stick	82-72				
L2	Osc. Coil	10-645	14-1074			
L3	Input IF	10-508	16-6758	BC-352	12-C1	
L4	Output IF	10-479	16-6758	BC-353	12-C2	

SELENIUM RECTIFIER

ITEM No.	RATING CURRENT	REPLACEMENT DATA: SILVERTONE PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	MALLORY PART No.	RADIO RECEPTOR PART No.	SARKES TARZIAN PART No.	NOTES
M1	.085A	83-780	1004A	RS100	6S100	5M1	100	

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA: SILVERTONE PART No.	ASTATIC PART No. CARTRIDGE	ASTATIC PART No. NEEDLE	ELECTRO-VOICE PART No. CARTRIDGE	ELECTRO-VOICE PART No. MOUNT	REMARKS
M2	720091	55-T	GD-J	56	*PT-2	* Not necessary unless orig. mounting has been damaged.

ASTATIC NEEDLE LISTING SHOWN ABOVE IS SPECIFIED FOR THE RESPECTIVE REPLACEMENT CARTRIDGE LISTED. FOR ORIGINAL CARTRIDGE NEEDLE REPLACEMENT SEE BELOW.

PHONO NEEDLE

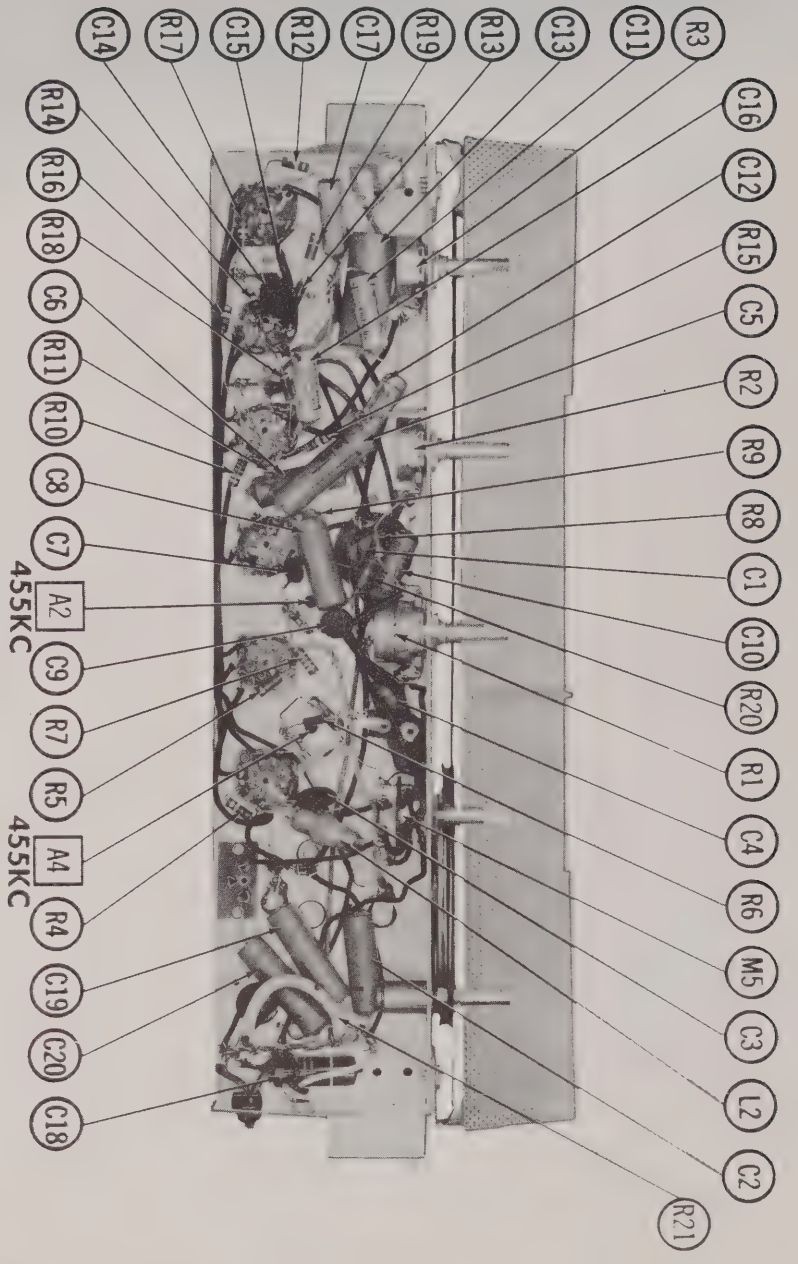
(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA: SILVERTONE PART No.	JENSEN PART No.	WALCO PART No.	REMARKS
M3	720055	†S-66 or †♦S-66SD or ♦S-66D	†W-75 TPS or ♦†W-75DS or ♦W-75TPD	† Jewel ♦ Diamond

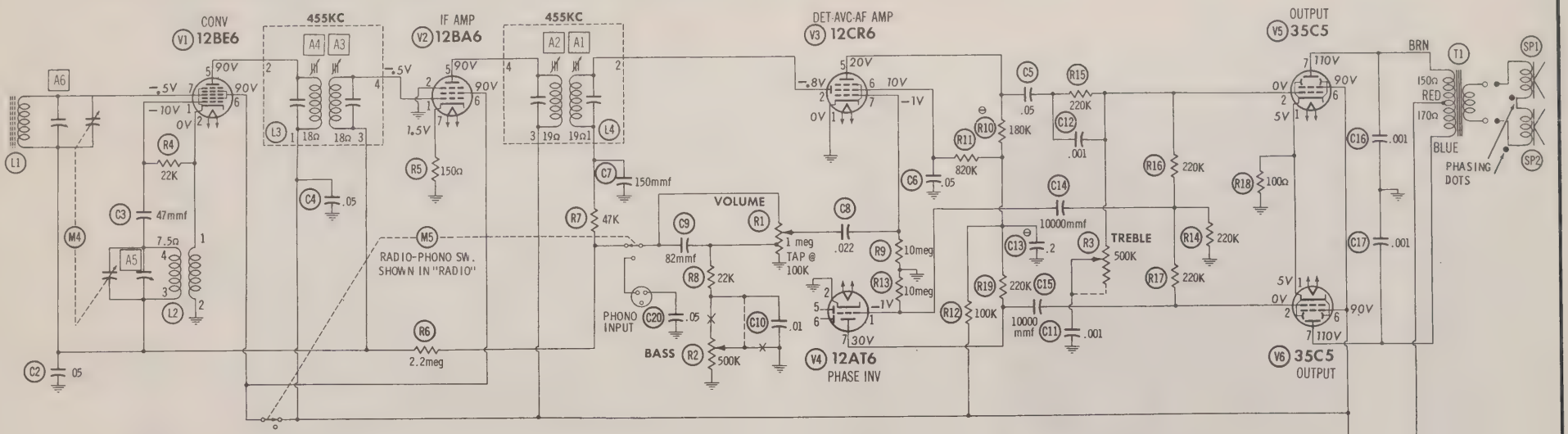
MISCELLANEOUS

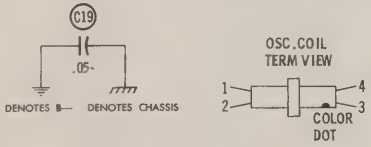
ITEM No.	PART NAME	SILVERTONE PART No.	NOTES
M4	Tuning Cap.	19-247	Two gang (13-467MMF, 26-190MMF)
M5	Switch	69-215	Radio-phono
	Pointer	54-43	
	Scale	67-607	Dial
	Knobs	52-571	Control (3 used)
	Knobs	52-730	Bass & treble
	Cabinet	42-849	Mahogany, Model 7045
	Cabinet	42-850	Limed oak, Model 7046

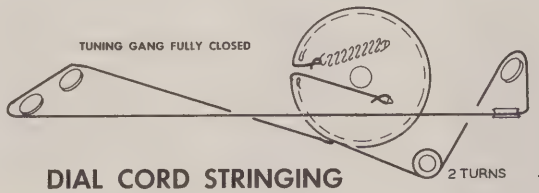
CHASSIS—BOTTOM VIEW



SILVERTONE MODEL 7045 (Ch. 528. 47200)





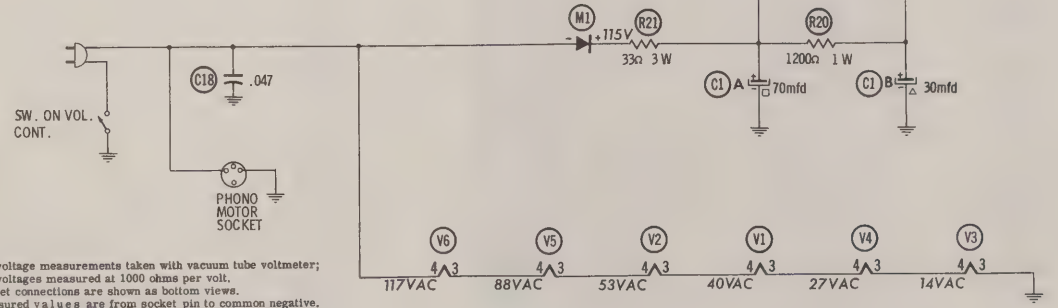


DIAL CORD STRINGING

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	12BE6	22K	.9Ω	26Ω	38Ω	†1200Ω	†1200Ω	3.2Meg
V2	12BA6	3.2Meg	0Ω	38Ω	50Ω	†1200Ω	†1200Ω	150Ω
V3	12CR6	0Ω	1Meg	0Ω	14Ω	†280K	†920K	10Meg
V4	12AT6	10Meg	0Ω	14Ω	26Ω	NC	NC	†320K
V5	35C5	100Ω	440K	50Ω	82Ω	440K	†1200Ω	†180Ω
V6	35C5	100Ω	440K	82Ω	115Ω	440K	†1200Ω	†200Ω

ALL MEASUREMENTS TAKEN IN "RADIO" POSITION
† MEASURED FROM OUTPUT OF M1.
NC NO CONNECTION.



1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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DENVER, COLORADO

SILVERTONE MODEL
7074 (Ch. 567.34006, 567.35011)

SILVERTONE MODEL
7074 (Ch. 567.34006, 567.35011)

GENERAL INFORMATION

The Silvertone Model 7074 Tape Recorder is designed to record and playback two tracks of material on standard width recording tape, which doubles the recording and playing time with no loss of frequency response or quality. Recordings can be made from a radio, television receiver, or phonograph, in addition to those made directly from the microphone.

Model 7074 has simplified controls and a illuminated meter type volume level indicator. Markings on the meter show you the proper volume level at which to record. Meter light also serve to indicate when the unit is on.

Model 7074 has two tape speeds, 3 3/4" and 7 1/2" per second. Using both tracks of the tape, the recording time is as follows:

Reel Size	3 3/4" Speed	7 1/2" Speed
5" (600 ft.)	1 hour	1/2 hour
7" (1200 ft.)	2 hours	1 hour

Connect this recorder to an outlet supplying 110-120 volts, 60 cycles AC only. Before connecting to your line supply, be absolutely certain that it agrees with the above specifications.

Supplied by:

Sears, Roebuck & Co.
925 S. Homan Street
Chicago 7, Illinois

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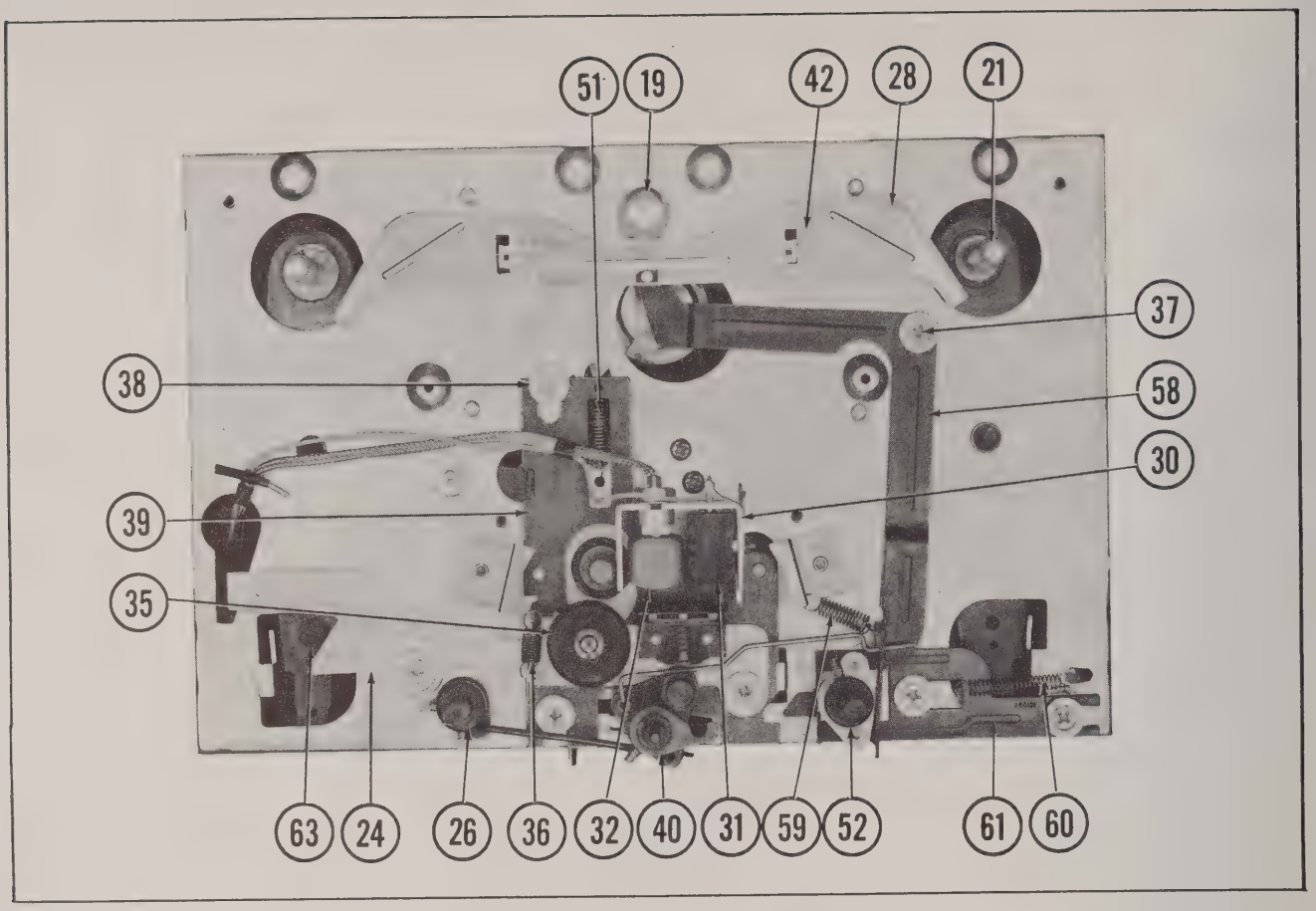

FIGURE 1

RECORDER PREPARATION

Preparation For Operation-

1. Open the cover on the recorder and remove the power cord, microphone, empty reel and reel of tape from the storage space at the rear of the set.

2. Plug the power cord into any AC outlet having the proper frequency and power requirements. This machine is designed for operation on a 105-125 volt, 60 cycle AC power supply.

3. Remove the cover by unlocking the hinge. Place the machine so that the controls are accessible and at a convenient height.

4. The tape recorder is now ready for use. Before operating it, familiarize yourself with the operating controls.

FUNCTION OF CONTROLS

Tape Drive Control-

The knob to the right of the "Volume" control operates the tape drive mechanism of the set both for playback and record.

The knob has two positions — idle and playback. At the left (counter-clockwise) position the control is in idle and the recorder will neither play back nor record. At the right (clockwise) position the control acts to switch the tape drive into position — either for playback or record.

On-Off-Volume Control-

The left hand knob on the recorder control panel operates the amplifier and motor of the set as well as controlling volume on both play back and record. Rotating this knob clockwise from the extreme left position turns amplifier on. Turning the knob further to the right increases volume; turning the knob to the left decreases volume.

Record Edit Control-

The small metal knob directly behind the recording level meter controls the amplifier circuits for record or playback. This knob is used in conjunction with the Tape Drive control. With the Record-Edit knob in the up (normal) position the amplifier circuit is set for playback and, when the Tape Drive control is turned to the right, tape will begin moving through the tape slot and any sound previously recorded on the tape will be reproduced.

Pushing the "Record Edit" control down switches the amplifier to record. The control will lock in the down position, when the control is held down, and the "Tape Drive" knob is turned to the right. Tape will now begin moving through the tape slot and the machine will then record.

Fast Forward — Rewind Control-

The knob to the right of the Record-Edit knob controls the high speed forward and rewind mechanism of the recorder. With the "Tape Drive" knob in "Idle" position, movement of the "Forward - Rewind" knob

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to the right (clockwise) will wind the tape on the "Take-up" reel at a high rate of speed. Movement of the knob to the left (counter-clockwise) will rewind the tape on the "Feed" reel at a high rate of speed.

Tone-Monitor Control And Motor Switch-

The knob at the right hand side of the control panel operates the motor of the tape recorder (when the amplifier switch is on) and acts as a monitor control in addition to regulating tone during playback of recordings.

The motor is turned on by rotating the knob to the right (clockwise), from extreme left position.

During playback the knob regulates tone. With the motor on, further rotation of the knob varies tone from bass (at the left) to treble (at the right).

When this control is in the extreme left position the motor is off even with the amplifier of the set turned on. This enables you to obtain proper volume level during recording without the necessity of running tape through the machine. The tape mechanism may be engaged and the volume control set without the tape moving.

With the set in record position, the tone knob acts to control the monitor circuit of the set. For proper monitor volume level, the tone control should be set as for counter-clockwise (left) as possible without turning the motor off, and then rotated slowly clockwise (right) until a suitable volume level for the monitor circuit is obtained.

Speed Control-

Changing speeds is accomplished by placing the speed button in the "Up" or "Down" position. Up for 3 3/4" per second and "Down" for 7 1/2" per second.

CAUTION: Do not operate the speed control unless the motor is running.

OPERATING INSTRUCTIONS

Threading The Tape-

1. Place a reel of tape on the right reel plate and an empty reel on the left reel plate making sure the reel slot engages the pins on the reel plates.

2. Unwind about 10" of tape from the reel. Hold a section of the tape straight with both hands and insert the tape in the tape slot making sure the dull coated side faces the rear of the recorder.

3. Insert the free end of the tape into one of the three radial slots in the hub of the empty reel. Turn the reel several turns, clockwise, until the tape is secured to the reel and all slack is taken up between reels.

To Record From Microphone-

1. Turn the "On-Off-Volume" control clockwise until a click is heard and allow about thirty seconds for the tubes to warm up.

2. Insert the microphone plug into the "Mike" jack.

3. Make sure the "Tone" control and Motor switch is in the off position. Push down on the "Record-Edit" knob, hold it down and turn the "Tape Drive" knob to the right (clockwise) position until both knobs lock in place.

4. Speaking into the microphone in a normal voice, turn the "Volume" control to the right until the pointer on the Recording Level Meter fluctuates only with the "Normal" range. If possible make a preliminary, experimental recording to determine the correct setting of the "Volume" control for the type of material being recorded. For ordinary voice recording hold the microphone about six to twelve inches from your mouth.

5. Turn the "Tone" control and "Motor" switch to on position, adjust the "Tone - Monitor" control to the proper level. Adjust the "Speed" control knob for the desired speed 3 3/4" or 7 1/2" per second.

NOTE: Correct recording volume is very important. Too weak a signal, which does not cause the record level to fluctuate, will result in weak playback and high background noise. Too strong a signal, causing the level indicator to go above the "Normal" (green) range, will result in distortion.

To Record From Radio-

Recordings from a radio may be made by one of three ways:

1. Place the microphone about 6" to 12" in front of the radio speaker. Turn the radio volume control to a normal level. Setting it too high will cause distortion. Turn the radio tone control to maximum treble. Set the recording level and proceed with recording as described under "To Record From Microphone". This type of recording may not be satisfactory as other sounds may be picked up by the microphone which as a result will be recorded on the tape.

2. Using speaker cable made up with a two conductor phone plug on one end and two alligator clips on the other end. Connect the alligator clips across the voice coil terminals on the radio speaker and insert the cord plug into the "Radio" jack. Set the radio volume and tone controls as described above. Set the recording level and proceed as described under "To Record From Microphone".

3. Have a shielded cable with a two conductor phone plug on one end and the other end connected across the radio volume control. Insert the phone plug into the "Radio" jack. Set the recording level and proceed with the recording as described under "To Record From Microphone". The position of the radio volume and tone controls has no effect on this setup and may be set anywhere.

To Record From Phonograph-

1. If the phonograph being used has a phone type plug on the pickup leads, insert it into the "Radio" jack. Set the recording level and proceed with the recording as described under "To Record From Microphone".

2. If the phonograph has a standard pin type plug which is more common, an adaptor is needed. Insert the pin plug into the adaptor and plug the adaptor into the "Radio" jack.

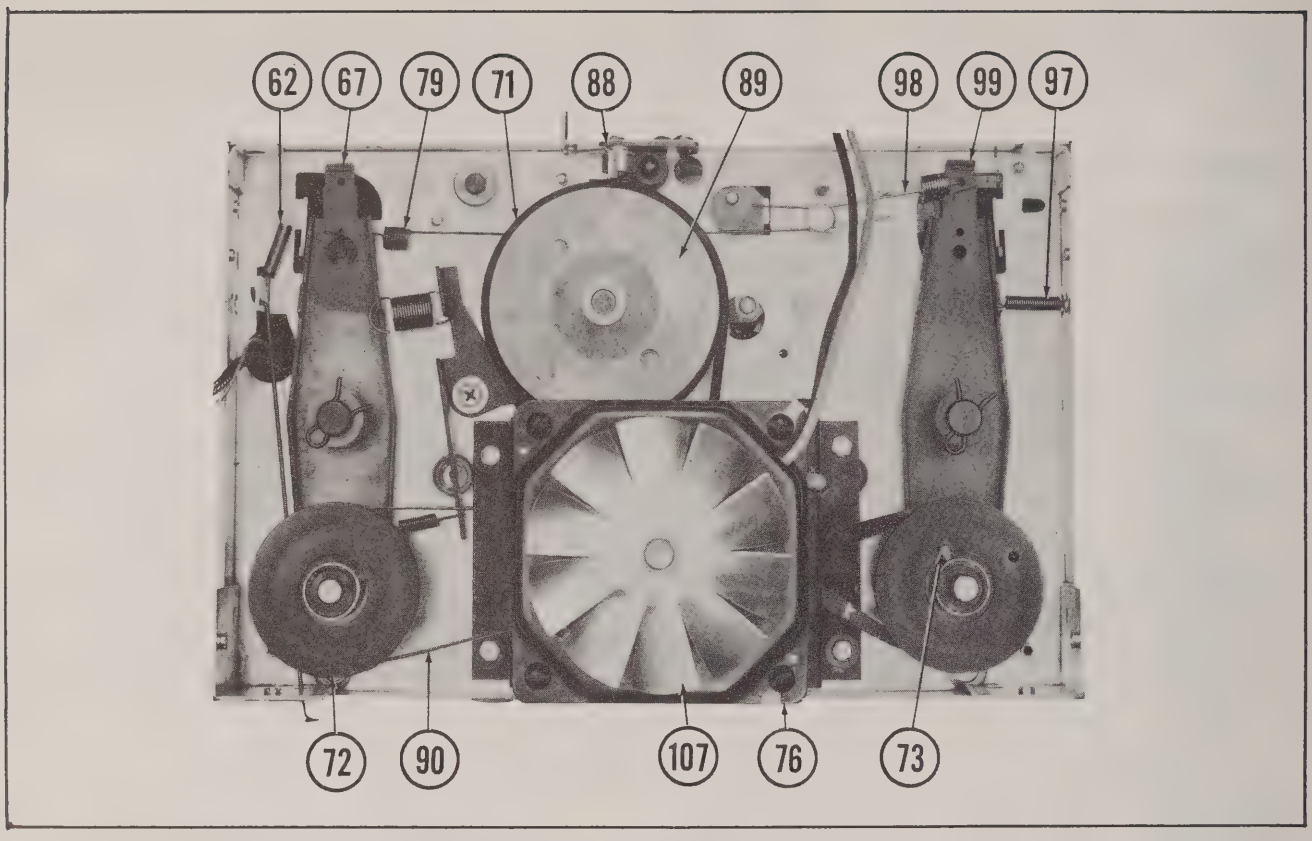

FIGURE 2

To Record From Television Receiver-

1. Use one of three methods described under "To Record From Radio" and proceed with the recording as described under "To Record From Microphone."

Dual Track Recording-

The Silvertone is designed so that only one-half the tape width is recorded at a time: thereby resulting in two track recording. This two track operation is accomplished in the following manner:

1. After a reel of tape has been recorded, i.e. all of the tape wound onto the take-up reel, turn the "Tape Drive" control (13) to idle.

2. Remove the reels from the recorder turning the full reel over and placing it on the right reel plate and the empty reel on the left reel plate.

3. Properly thread the tape and proceed with the recording.

4. After this track has been recorded the first track of recording is ready to be played without rewinding, by reversing the reels as described in step 2 above.

To Play A Recording-

1. Thread tape as described under "Threading The Tape".

2. Turn "Tape Drive" control clockwise without pressing Record-Edit button.

3. Adjust the "Volume" and "Tone" controls for desired listening level.

To Use An External Speaker-

1. You may want to use a larger speaker than the one in the recorder to improve the frequency response. To do this use the speaker cable supplied as outlined in Step 2 below.

2. Connect the cable to the speaker you desire to use, with the alligator clips. Then plug the cable into the external speaker jack and play the recorder through the external speaker.

CAUTION: Do not connect plug into output jack without external speaker attached to the plug; as damage to the output tube transformer and tone control may result.

To Edit And Splice Tape-

NOTE: Since it is impossible to edit and splice one track without affecting the other, recordings which are to be edited should be limited to one track only.

1. The tape may be edited by cutting out unwanted portions, or by joining selections into another sequence. Announcements may be inserted between selections, etc. Unused sections of tape can be spliced together for re-use.

2. For best results, cut tape at a slight diagonal, join ends together with splicing tape on the glossy side and trim off any excessive width.

Erasing Recorded Material-

In the record position any recording on the tape is automatically erased before a new recording is put on the tape. If it is desired to erase a recording with-

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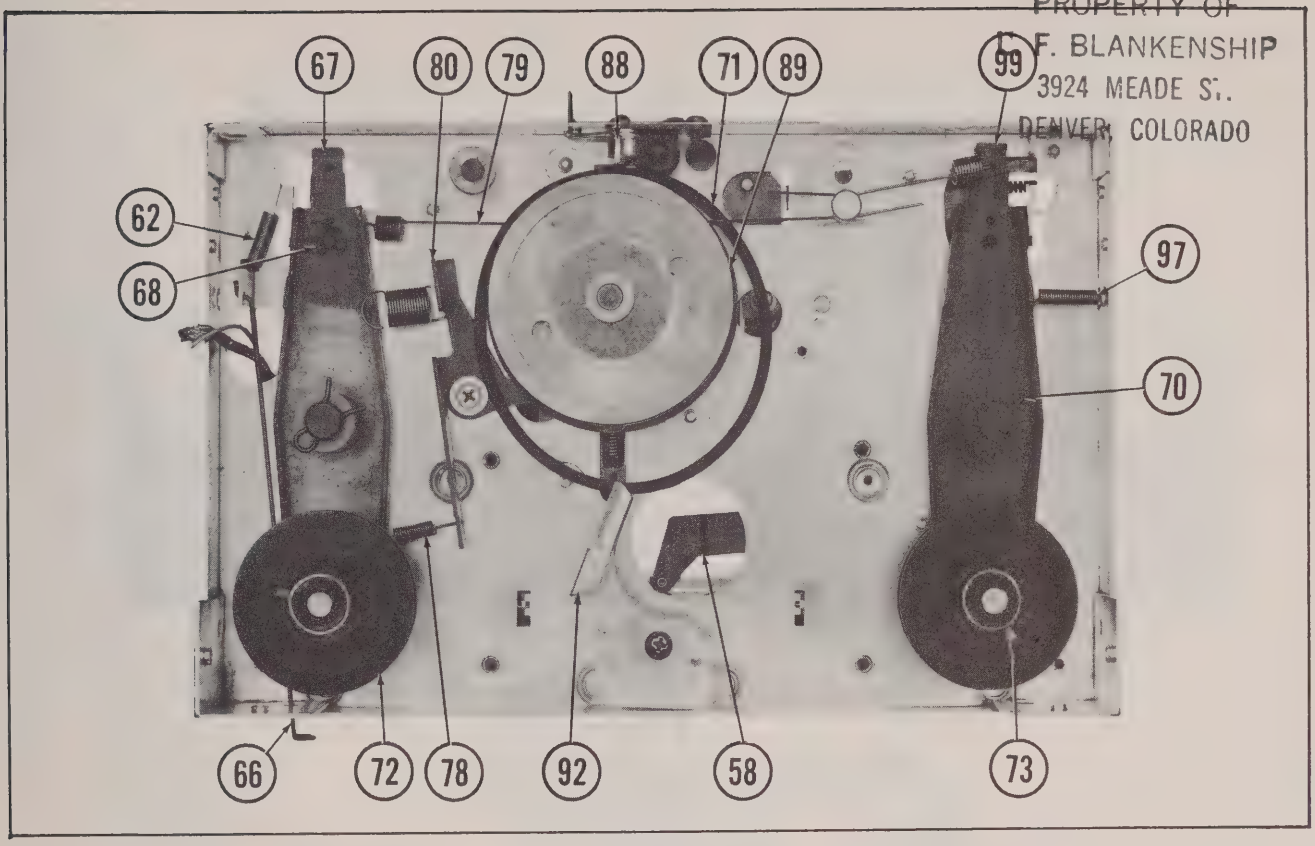


FIGURE 3

out putting anything on the tape follow the normal recording procedure, but leave the "Volume" control set at its extreme counter-clockwise position.

To Use As A Public Address System-

1. Insert the microphone plug into the "Radio" jack.

2. Leave the "Tape Drive" control on idle.

3. Speak into the microphone and adjust the "Volume" and "Tone" control for desired level.

4. Do not have the microphone too close to the speaker or a feedback howl will result.

ADJUSTMENTS

All service work except cleaning of the head and pressure roller and adjustments of the heads and pressure pad assembly require removal of the unit from the carrying case.

1. To remove unit from carrying case, remove the two wood screws (6) from the control panel escutcheon plate (See Exploded View).

2. Remove four screws from bottom of case and carefully lift unit straight up and out.

Spindle End Play Adjustments-

The spindles (21) should have from 1/32" to 1/16" of up and down movement. Loosen the set screw in the pulley (72) and move pulley up or down until the correct amount of end play is obtained.

Take-Up And Feed Reel Drag Adjustments-

When the tape-drive control (13) is in the idle position the reels should stop right away to prevent looping of the tape. Also when in fast forward or rewind and the control is released the reels should come to a stop without looping the tape. The stop arm on the motorboard (point "B" on exploded view) that the take-up and feed reel arms (67 and 99) rest against when the tape is not moving are what govern this. The stop arms should be bent to force the take-up reel arm (67 and the feed reel arm (99) over far enough to take up enough belt tension so that the spindles just start to revolve without the reels in place. The tape drive control (13) should be in its idle position when making this adjustment. With the reels in place the spindles should not revolve. If one or the other does, force the stop arm (point "B" on exploded view) over until it stops revolving.

Play-Record Head Adjustment-

It is very important that the head (32) be lined up perfectly with the tape. If it is not, low output, loss of high frequencies, or track overlap may result. When aligning head (32) observe the following:

1. The first adjustment is for output and frequency response. To make this adjustment a tape on which a 3000 cycle note has been recorded by a unit known to be in good operating condition will be required. Connect an output meter on an A.C. voltmeter across the speaker voice coil of the unit to be adjusted. While playing back the 3000 cycle note tape, move head back and forth on mounting until maximum amplitude on output meter is achieved. Make sure that head (32) height is right. Head height should be right if maximum gain is achieved.

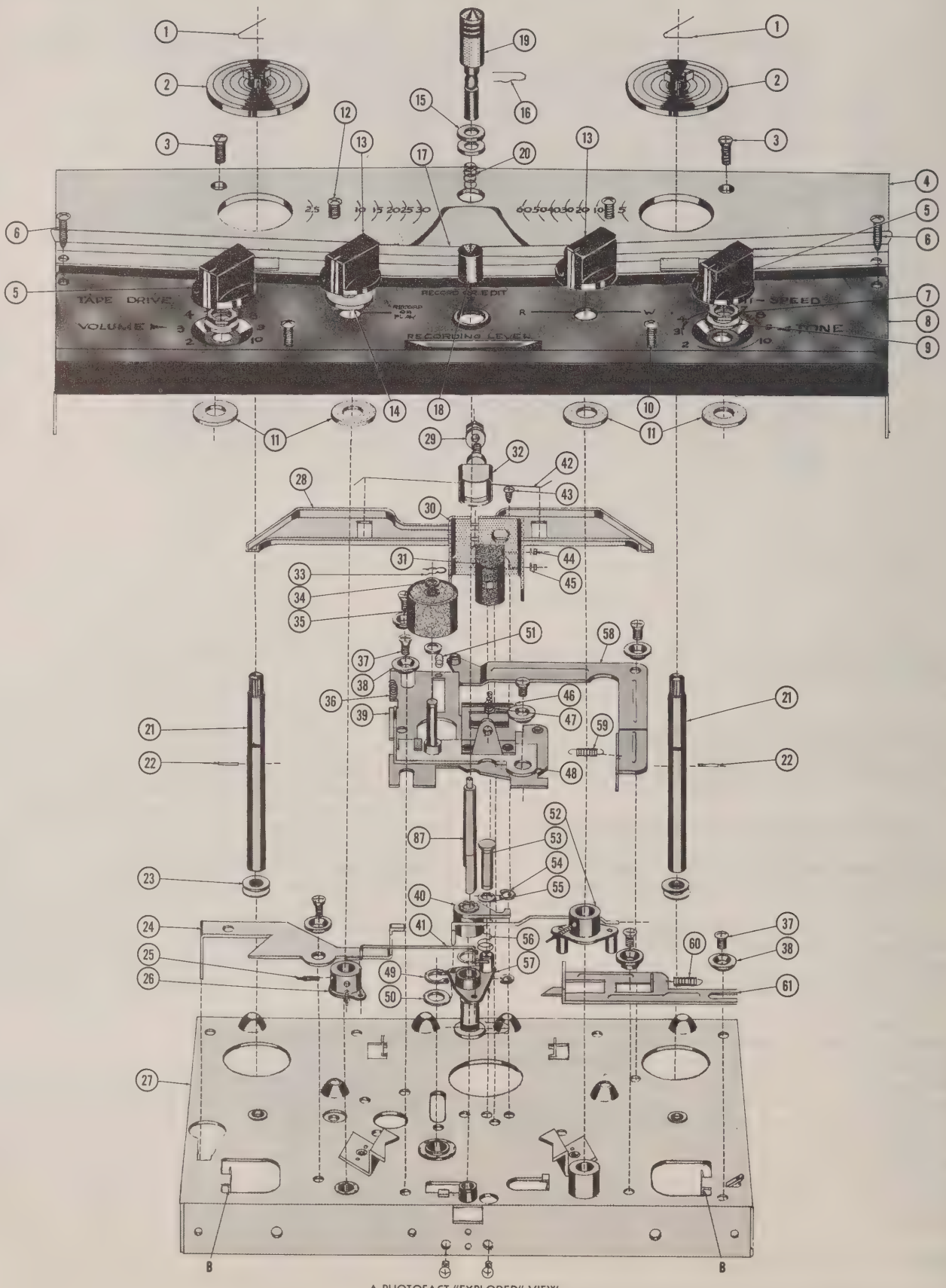


FIGURE 4A. EXPLODED VIEW OF PARTS ABOVE BASEPLATE.

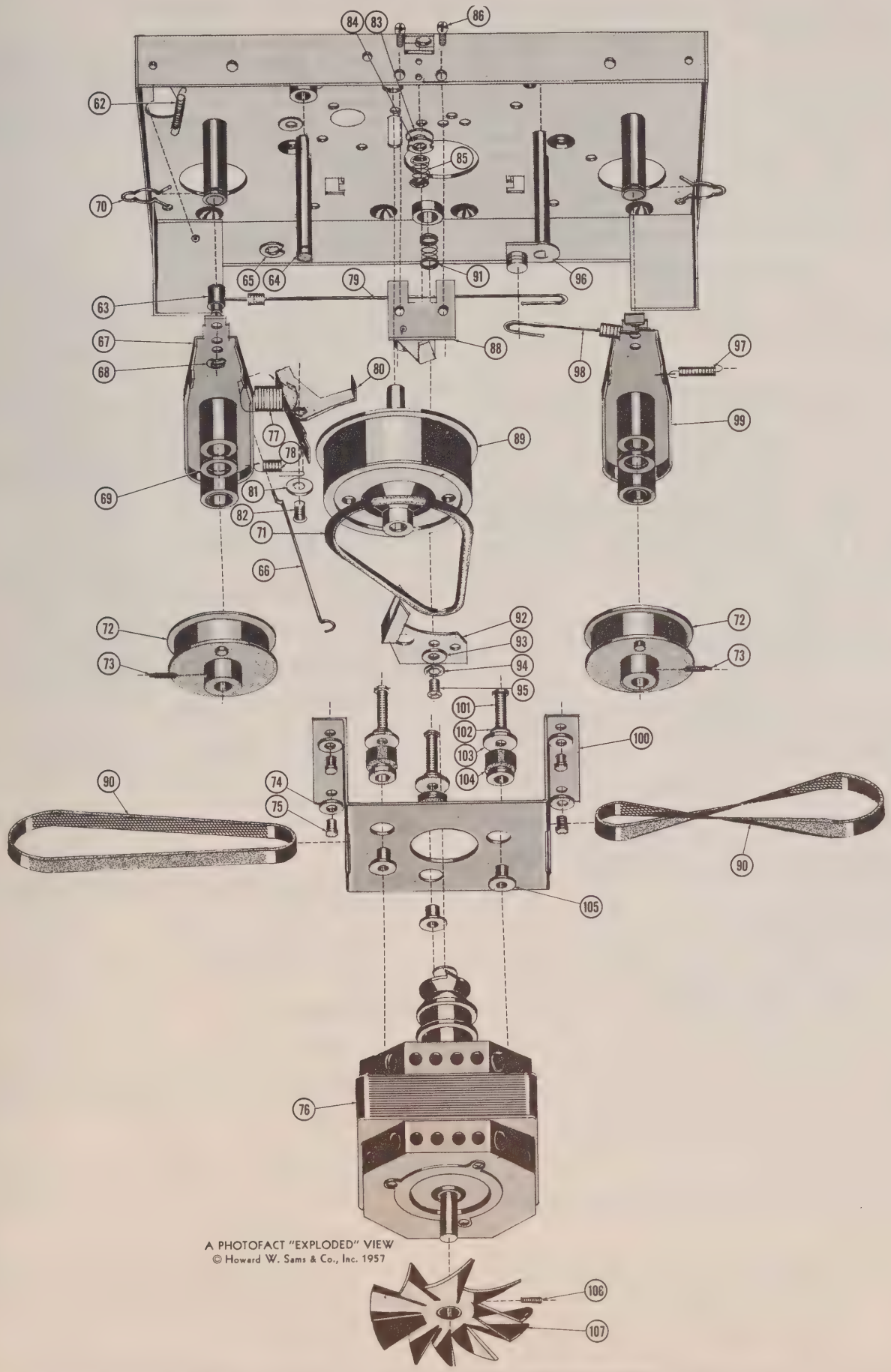


FIGURE 4B. EXPLODED VIEW OF PARTS BELOW BASEPLATE.

If a 3000 cycle note tape cannot be made, use a recording with high note content and make the adjustment described above.

Erase Head Adjustment-

The erase head (31) and bracket assembly (30) has been pre-aligned at the factory and no adjustments are provided. To replace erase head (31) it is necessary to remove "Play-Record head (32). After erase head is installed the "Play-Record" head must be realigned, this insures the proper frequencies response of the recorder (See Play-Record Head Adjustment).

AMPLIFIER ADJUSTMENTS

The following adjustments should be made whenever circuit components are replaced or repaired in the amplifier.

These adjustments must be made with set turned on and in "Record" position, but with no signal input.

1. Adjust "Oscillator Coil" adjustment (A1) for 52.5KC reading on frequency meter.

2. Adjust "Meter" adjustment (R3) to point where needle on the meter rests directly over the black dot at the left side of the meter. With (R3) properly adjusted there should be a slight movement of the needle when the set is turned off and on.

3. To adjust "52.5KC Trap" volume must be set at maximum. Adjust (A2) for minimum 52.5 reading at external amplifier jack.

4. Set (R4) "Hum Adjust" for minimum reading across load at "ext. speaker jack" with volume and treble set at maximum.

LUBRICATION

The lubricants applied at time of manufacture should be sufficient for a long period of time. Approximately once a year, or in the event that parts are replaced, lubricate the unit as follows:

With No. 20 Motor Oil-

1. Take-up reel arm (67) bushing.
2. Feed reel arm (99) bushing.
3. Spindles (21) bearings.
4. Flywheel (89) bearings.

With Staput No. 312 Grease Or Lubriplate-

1. Pressure plate (39) at the slide button and the guide on the right side.

2. On the stud of the cam and bushing assembly (57).

CAUTION: Do not oil the motor bearings unless absolutely necessary as excess oil will only be thrown off and cause slipping of the pulley and rollers. Always use as little oil as possible. If oil should get on the pulleys and rollers wipe off with a petroleum solvent, such as alcohol. Do not use carbon-tetrachloride.

CLEANING

The record and erase heads, capstan shaft (89) and pressure roller (35) are subject to an accumulation of tape coating residue, which is worn off the tape as it passes these parts. This can cause distortion, weak output and poor erasure. Use a soft cloth and alcohol to clean the head surfaces; capstan and pressure roller.

TROUBLES

Won't Take Up Tape Properly-

1. Spindle (21) binding.
   (a) Lubricate.
2. Belt (90) slipping.
   (a) Clean motor pulley and pulley (72).
3. Belt (90) broken.
   (a) Remove bracket (100) and replace belt.
4. Set screw loose in take-up pulley (72).
   (a) Tighten and leave 1/32" to 1/16" end play in spindle.
5. Pulley (72) broken.
   (a) Replace pulley.

Fast Forward Won't Function Properly-

1. See above except for step 2.

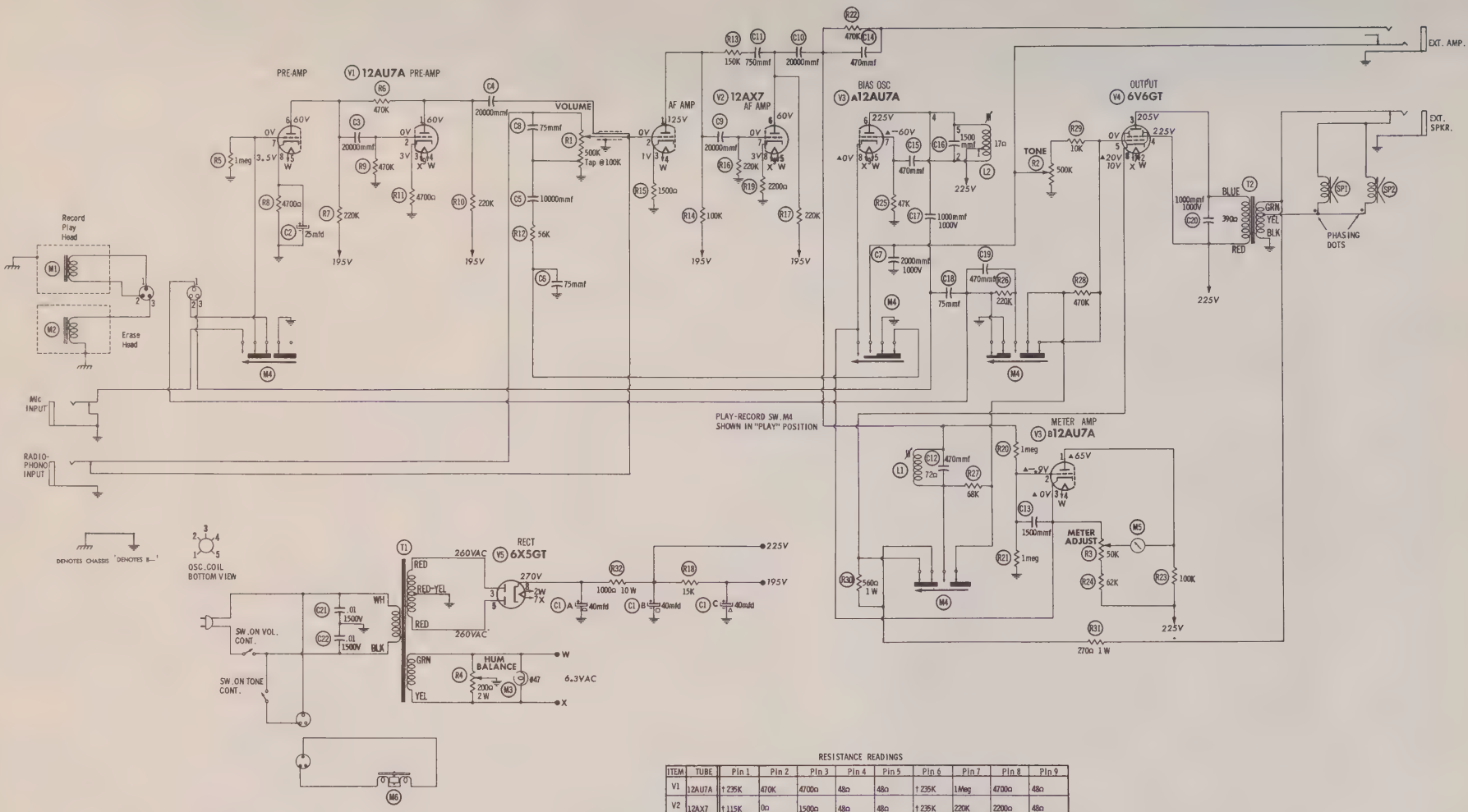
Fast Rewind Won't Function Properly-

1. Spindles (21) binding.
2. Belt (90) slipping.
   (a) Clean motor pulley and pulley (72).
3. Belt (90) broken.
   (a) Remove bracket (100) and replace belt (90).
4. Set screw loose in rewind pulley (72).
   (a) Tighten and leave 1/32" to 1/16" end play in spindle.
5. Rewind pulley (72) broken.
   (a) Replace pulley.

Speed Variation Or Wow-

1. Slippage.
   (a) Clean motor pulley, flywheel and capstan (89) pressure roller (35) with a petroleum solvent, not carbon-tetracholoride. Replace rubber roller if oil soaked.
2. To much feed reel drag.
   (a) Check adjustments as described under "Take-Up And Feed Reel Drag Adjustment".
3. Flat spot on pressure roller (35).
   (a) A rapid thumping sound while the unit is running may indicate a flat spot on the rubber roller. If this condition does not clear up after several minutes of running time replace the roller.

   (b) If the surface of the rubber roller is not smooth and even, replace part.



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AU7A	†235K	470K	4700Ω	48Ω	48Ω	†235K	1Meg	4700Ω	48Ω
V2	12AX7	†115K	0Ω	1500Ω	48Ω	48Ω	†235K	220K	2200Ω	48Ω
V3	12AU7A	†50K	600K	▲0Ω	48Ω	48Ω	†1000Ω	47K	▲0Ω	48Ω
V4	6V6GT	TP	48Ω	†1400Ω	†1000Ω	470K ▲9000Ω	NC	48Ω	270Ω ▲850Ω	
V5	6X5GT	TP	48Ω	310Ω	NC	330Ω	NC	48Ω	50K	

ALL VOLTAGES TAKEN IN PLAY POSITION UNLESS OTHERWISE NOTED.
† MEASURED FROM PIN 8 OF V5.
▲ MEASURED IN RECORD POSITION. ITION.
■ RECORD HEAD (M1) DISCONNECTED.

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PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Preamplifier	12AU7A	
V2	AF Amplifier	12AX7	
V3	Meter Amp-Bias Osc.	12AU7A	
V4	Output	6V6GT	
V5	Rectifier	6X5GT	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA SILVERTONE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	▲40	300	770088	AFH4-02		FP217, 87		D-130	R1898*
B	■40	300			D0020	TC78	TMT-23	MT-4540	
C	▲40	300							
C2	25	25	770003	PRS25V25	BBR25-25	TC26	TD-25-25	FM-0225	TVA-1205

* Non-Catalog Item.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA SILVERTONE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C3	20000		770092	BPD-02	DD-203	BYB6S2	ED-02		5HK-S2	
C4	20000		770092	BPD-02	DD-203	BYB6S2	ED-02		5HK-S2	
C5	10000		770096	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C6	75		770097	SI-75	DD-750	L10Q75	ED-75	UC-5475	5GA-Q75	
C7	2000	1000	770110		DD-202	BYA10D2				
C8	75		770097	SI-75	DD-750	L10Q75	ED-75	UC-5475	5GA-Q75	
C9	20000		770092	BPD-02	DD-203	BYB6S2	ED-02		5HK-S2	
C10	20000		770092	BPD-02	DD-203	BYB6S2	ED-02		5HK-S2	
C11	750		770094	SI-750	DD-751	L10T75	ED-750	UC-5375	5GA-T75	
C12	470		770090	BPD-00047	DD-471	BYA10T47	ED-470	UC-5347	5GA-T47	
C13	1500		770098	BPD-0015	DD-152	BYA10D15	ED-0015	DC5215	5HK-D15	
C14	470		770090	BPD-00047	DD-471	BYA10T47	ED-470	UC-5347	5GA-T47	
C15	470		770090	BPD-00047	DD-471	BYA10T47	ED-470	UC-5347	5GA-T47	
C16	1500			1464-0015		1R5D15	ED-0015		MS-215	
C17	1000	1000	770140	HVD-15-1000	DD-102	BYA10D1M		DC3021	10GA-D1	
C18	75		770097							
C19	470		770090	BPD-00047	DD-471	BYA10T47	ED-470	UC-5347	5GA-T47	
C20	1000	1000	770140	HVD-15-1000	DD-102	BYA10D1M		DC3021	10GA-D1	
C21	.01	1500	770105	1688N-01		CUB-16S1		GEM-1611	16TM-S1	
C22	.01	1500	770105	1688N-01		CUB-16S1		GEM-1611	16TM-S1	

CONTROLS

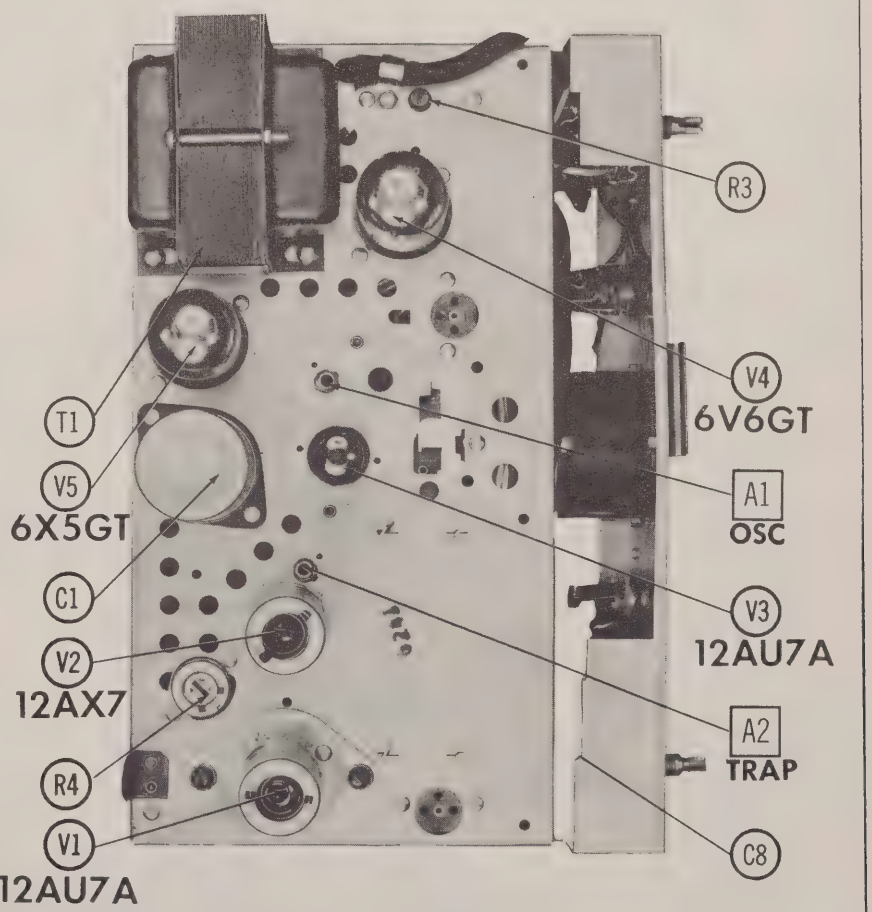
ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA SILVERTONE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	500K	½	740087	BT-66	A47F-500K	Q13-133X	UT427	Volume Tap @100K
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	Attach To R1A
C	Switch			KB-1	SWE-12	76-1	US-26	Attach To R1A
R2A	500K	½	740052	B-60	A47-500K-Z	Q13-133	U48	Tone
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	Attach To R2A
C	Switch			KB-1	SWE-12	76-1	US-26	Attach To R2A
R3A	50K	½	740079	BX-31				Meter Adjust
B	Shaft			Not Req.				Attach To R3A
R4	200Ω	2WWW	740045				FL-200	Hum Balance Wire Wound

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA SILVERTONE PART No.	IRC PART No.	NOTES
R5	1Meg		760001	BTS-1Meg	
R6	470K		760037	BTS-470K	
R7	220K		760036	BTS-220K	
R8	4700Ω		760073	BTS-4700	
R9	470K		760037	BTS-470K	
R10	220K		760036	BTS-220K	
R11	4700Ω		760073	BTS-4700	
R12	56K		760011	BTS-56K	
R13	150K		760008	BTS-150K	
R14	100K		760060	BTS-100K	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	PART No.	IRC PART No.	
R15	1500Ω		760003	BTS-1500	
R16	220K		760036	BTS-220K	
R17	220K		760036	BTS-220K	
R18	15K		760027	BTS-15K	
R19	2200Ω		760068	BTS-2200	
R20	1Meg		760001	BTS-1Meg	
R21	1Meg		760001	BTS-1Meg	
R22	470K		760037	BTS-470K	
R23	100K		760077	BTS-100K	
R24	62K 5%		760079	BTS-62K 5%	
R25	47K		760013	BTS-47K	
R26	220K		760036	BTS-220K	
R27	68K		760057	BTS-68K	
R28	470K		760037	BTS-470K	
R29	10K		760019	BTS-10K	
R30	560Ω	1	760105	BTA-560	
R31	270Ω	1	760115	BTA-270	
R32	1000Ω	10	760401	PW10-1000	

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA				NOTES
		PRI.	SEC.	SILVERTONE PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	52.5KC Trap	72Ω		700066	6315			
L2	Osc. Coil	17Ω		700088				Tapped ⓐ4Ω Note #1

Note — Includes C16

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA					
	PRI.	SEC. 1	SEC. 2	SEC. 3	SILVERTONE PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117VAC ⓐ.34A	525VCT ⓐ.044A	6.3V ⓐ 2.15A		700089	P9203 ① ② ④	P-3047 ④	PM8402 ① ② ④	22R01 ① ② ③	R-8B ① ② ④

① Tape 5V Filament Winding
② Tape Center Tap On 6.3V Filament Winding.
③ Use Mounting Brackets
④ Fabricate Mtg.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	SILVERTONE PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	5000Ω	3-4Ω Tap ⓐ 2Ω	700071						

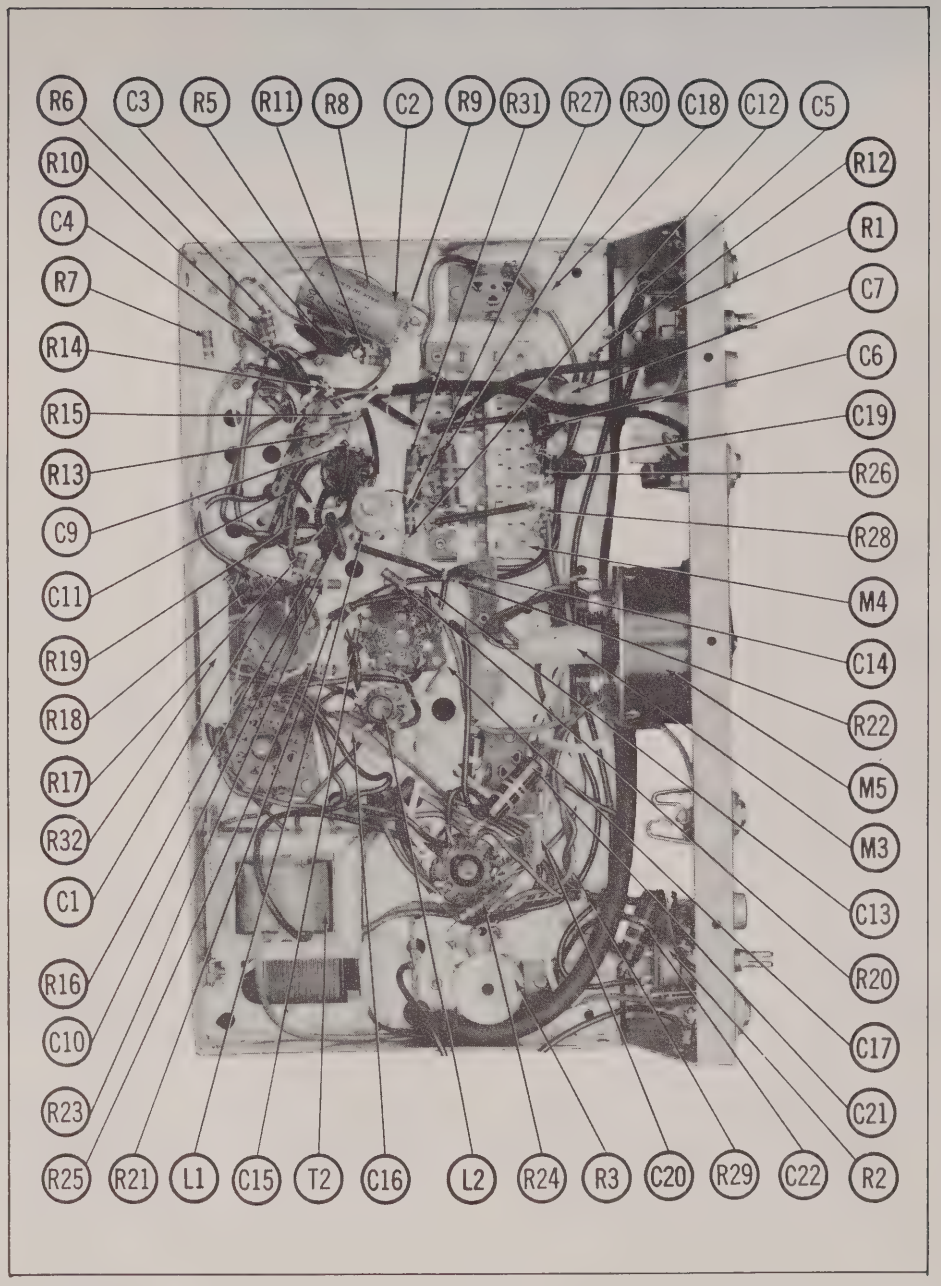
SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	SILVERTONE PART No.	QUAM PART No.	RCA TYPE No.	
SP1	6"	PM	3-4Ω	011701 ①	6A15 ①		① Connect in parallel & Phase
SP2	6"	PM	3-4Ω	011701 ①	6A15 ①		

MISCELLANEOUS

ITEM No.	PART NAME	SILVERTONE PART No.	NOTES
M1	Record Head	012565	
M2	Erase Head	720095	
M3	Pilot Light	730016	#47
M4	Switch	013046	Record-Play
M5	Meter	700098	
M6	Motor	011692-2	
	Knob	310446	On-Off Volume, Tone, Motor Switch
	Knob	310447	Record-Play, Fast Forward-Rewind
	Knob	220032	Record, Edit
	Cabinet	440378	Includes Lid

CHASSIS—BOTTOM VIEW



MECHANICAL PARTS LIST

Ref. No.	Part No.	Description
1	460165	Reel Holder Retainer (2)
2	013170	Take-up and Feed Reel Holder (2)
3	600323	#6-32 Ph. OV. Hd. Screw (2)
4	013168	Plastic Top Plate
5	310446	Volume-On-Off and Tone-Motor Switch Knob
6	620017	#6-1/2" Ph. Rd. Hd., Wood Screw
7	590021	3/8-32 Steel Hex Nut.
8	013169	Control Panel Escutcheon Plate
9	580100	Flat Washer (2)
10	600334	#6-32 x 3/8" Ph. Rd. Hd. Screw (2)
11	580132-1	Fibre Washer (4)
12	600366	#6-32 x 1/4" Ph. Truss Hd. Screw (2)
13	310447	Record-Play and Fast Forward-Rewind Knob
14	580192	Felt Washer
15	580056	Control Knob Washer
16	420152	Speed Control Detent Spring
17	310165	Silvertone Logo
18	220032	Record-Edit Knob
19	011693	Speed Control Knob and Shaft
20	420151	Control Knob Spring
21	011319	Take-up and Feed Reel Spindle (2)
22	460115	Roll Pin (2)
23	580141	Washer (4)
24	101015	Foot Switch Lever
25	600247	6-32 x 3/8" Set Screw
26	012345	Tape Drive Control Cam
27	013004	Motorboard
28	101001	Brake Plate
	012758	Head and Bracket Assy. (Inc. 29, 30, 31, 32, 44 and 45)
29	580008	Flat Washer
30	012032	Head Mtg. Bracket
31	720095	Erase Head #TE2C
32	012565	Record Head and Cable Assy.
33	460111	Pressure Roller Retainer
34	580143	Cloth Washer (2)
35	011236	Pressure Roller
36	420174	Capstan Pressure Spring
37	600243	#6-32 x 1/4" Ph. Flat Hd. Screw
38	200288	Slide Button Spacer
39	012381	Pressure Plate
40	013043	Catch
41	100872	Drive and Record Control Link Wire
42	420188	Brake Plate Spring
43	600242	#6-32 x 1/4" Ph. Hd.
44	590046	#2-56 Hex Nut (2)
45	580187	Flat Washer
46	012907	Pressure Shoe, Inc.
47	420104	Pressure Shoe Spring
48	013137	Pressure Roller Arm
49	460018	Shaft and Flywheel Retainer
50	580141	Washer (2)
51	420171	Slide Return Spring
52	013044	Hub Assembly
53	200392	Plunger
54	460144	Retaining Ring (2)
55	580201	Washer
56	420187	Plunger Spring
57	013000	Cam and Bushing Assy.
58	013006	Brake Lever
59	420171	Brake Lever Return Spring
60	420066	Interlock Lever Return Spring
61	101002	Interlock Lever
62	420181	Foot Switch Lever Return Spring
63	200403	Cam Pin
64	200351	Tape Drive Control Shaft
65	460117	"C" Washer
66	100967	Foot Switch Linkage Wire
67	012377	Take-up Arm
68	580082	"C" Washer
69	580207	Special Washer
70	460110	Retainer
71	490087	Capstan Drive Belt
72	011317	Take-up and Feed Reel Pulley (2)
73	600247	6 x 3/8" Slab Hd. Set Screw (2)
74	580056	Bracket Mtg. Washer (4)
75	600256	Bracket Mtg. Screw (4)
76	011682-2	Motor, Pulley, Cable And Plug
77	420186	Take-up Spring
78	420172	Brake Take-up Lever Spring
79	420176	Take-up Arm Tension Spring
80	100809	Take-up Lever
81	200288	Slide Button Spacer Washer
82	600243	Take-up Lever Screw
83	320059	Rubber Washer
84	460125	Record Release Spring Retainer
85	420189	Record Release Spring
86	600111	Shaft And Bracket Assembly Mounting Screws (2)
87	200397	Control Shaft
88	013009	Control Shaft Bracket And Edit Lever Assy.
89	011694	Flywheel And Shaft Assembly
90	490089	Take-up And Feed Reel Drive Belts (2)
91	420151	Speed Control Compression Spring
92	100760	Speed Control Bracket
93	580213	Flatwasher, 7/16" O.D. Bracket Spacer
94	580019	Lockwasher, #6 Ext. Tooth, Bracket Spacer
95	600242	Speed Control Shaft Screw
96	012347	Fast Forward and Rewind Shaft and Cam Assembly
97	420173	Rewind Arm Brake Spring
98	420175	Rewind Arm Tension Spring
99	012378	Rewind Arm
100	011739	Motor Mounting Bracket
101	600245	#8-32 x 5/8" Screw (3)
102	580119	#8 Lockwasher (3)
103	580151	Bracket Mtg. Washer (3)
104	320053	Motor Mtg. Rubber Bushing (3)
105	320018	Motor Mtg. Spacer (3)
106	600153	#8-32 x 3/16" Set Screw
107	011321	Motor Fan

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE St.
DENVER, COLORADO

TRAV-LER
MODELS 55C46, 56C46

TRAV-LER
MODELS 55C46, 56C46

TRADE NAME	Trav-Ler Models 55C46, 56C46
MANUFACTURER	Trav-Ler Radio & Tel. Corp., 571 W. Jackson Blvd., Chicago, Illinois
TYPE SET	AC Operated AM Receiver With Electric Clock
TUBES (Five)	Types 12BE6 Converter, 12BA6 IF Amplifier, 12AV6 Det-AVC-AF Amp., 50C5 Output, 35W4 Rectifier
POWER SUPPLY	110-120 Volts AC - 60 Cycles — RATING .28 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	535KC - 1630KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and B-.
Loop should be maintained in same relative position to chassis as when receiver is in cabinet.
To set pointer, turn tuning capacitor fully closed and set pointer parallel with base of dial.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to antenna stator lug on tuning gang. Low side to B-.	455KC (400~ Mod)	Tuning gang fully open.	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.	"	"	1630KC	"	"	A5	"
3.		Loop	1400KC	Tune to 1400KC signal.	"	A6	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
4.		"	535KC	Tuning gang fully closed.	"	A7	"

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PARTS LIST AND DESCRIPTIONS

TRAV-LER
MODEL 55C46

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Converter	12BE6	
V2	IF Amplifier	12BA6	
V3	Det-AVC-AF Amp.	12AV6	
V4	Output	50C5	
V5	Rectifier	35W4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	Trav-Ler PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	50	150	EC-35	PRS150V5050	BBRD5515	TCD49	TDLD-9	FMD-1550	TVA-2453
B	50	150							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	Trav-Ler PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2	220		CC-33	BPD-00022	DD-221	L10T22	ED-220	UC-5322	5GA-T22	
C3	47		CC-12	NP0-SI47	TCZ-47	C10Q47U	TC7-47		5TCC-Q47	
C4	.05	400	PC-5	BPD-05	DF-503	CUB4S5		GEM-415	4TM-S5	
C5	5000		CC-3	BPD-005	DD-502	BYA10D5	GP-5000	DC525	5HK-D5	
C6	.1	400	PC-8	P488N-1	DF-104	CUB4P1		GEM-401	4TM-P1	
C7	.05	400	PC-5	BPD-05	DF-503	CUB4S5		GEM-415	4TM-S5	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	Trav-Ler PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	1Meg	½	VC-69		A47-1Meg-Z		U53	Volume
B	Shaft				RS-3/16		DS-37	

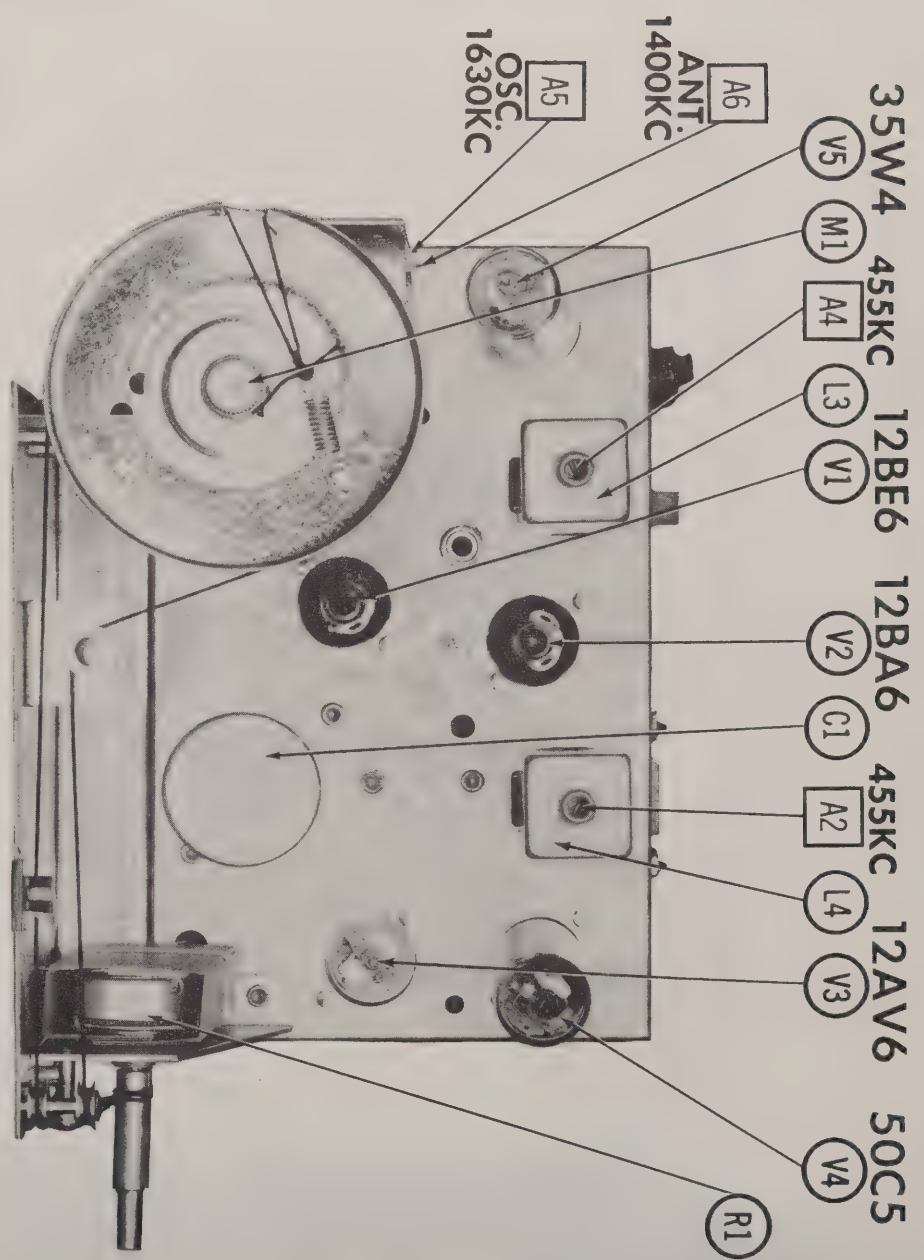
RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	Trav-Ler PART No.	IRC PART No.	
R2	33Ω		1R-17	BTS-33	
R3	22K		1R-9	BTS-22K	
R4	1Meg		1R-12	BTS-1Meg	
R5	3.3Meg		1R-23	BTS-3.3Meg	
R6	220Ω		1R-114	BTS-220	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	Trav-Ler PART No.	IRC PART No.	
R7	220Ω		1R-114	BTS-220	
R8	1000Ω	1	1R-42	BTA-1000	
R9	33Ω		1R-17	BTS-33	
R10	220K		1R-20	BTS-220K	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	Trav-Ler PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	2600Ω tapped	3-4Ω	Part of speaker SPK-43						

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	Trav-Ler PART No.	QUAM PART No.	
SP1	4"	PM	3-4Ω	SPK-43 ①	4A07	① Includes T1.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		Trav-Ler PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Loop Antenna	LL-43				
L2	Osc. Coil	LO-21	14-1060	BC-387	71-Osc.	135 Microhenries
L3	1st IF Transformer	LI-13	16-6758	BC-352	12-C1	
L4	2nd IF Transformer	LI-13	16-6758	BC-353	12-C2	

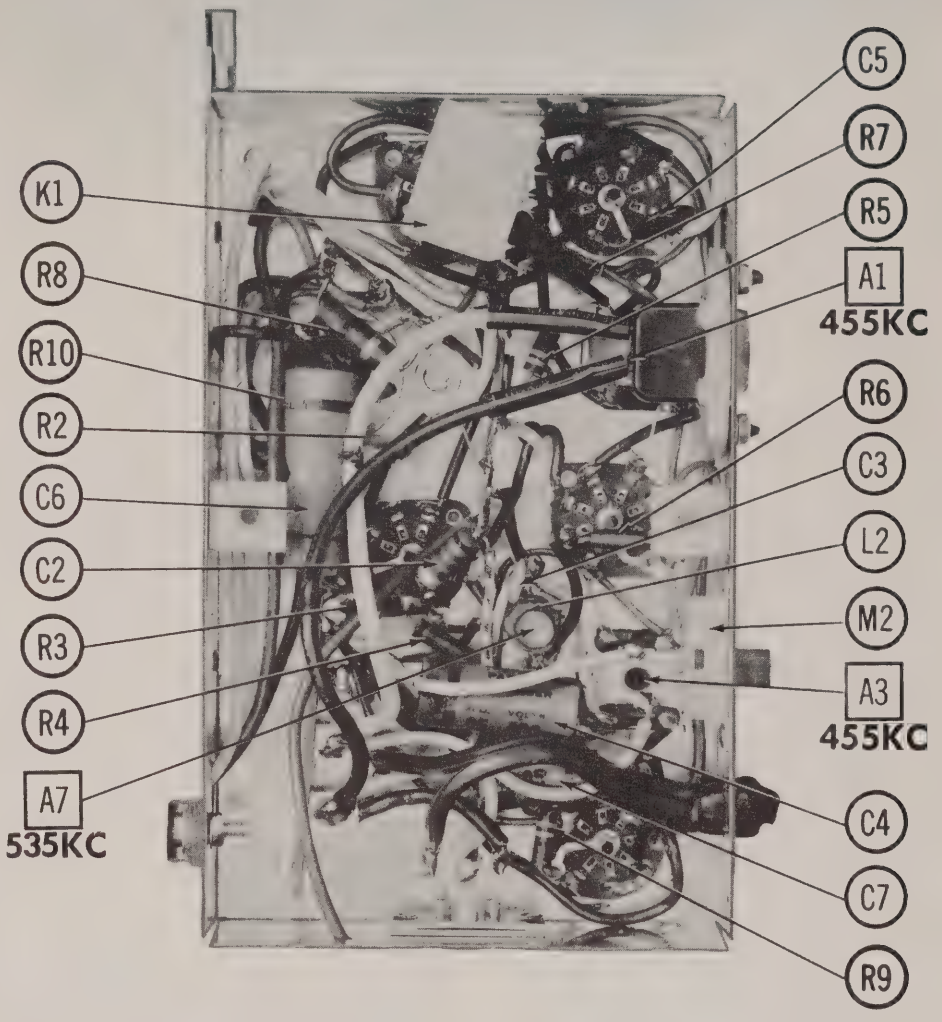
COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	Trav-Ler PART No.	REPLACEMENT DATA	
K1	Det. -Audio Coup. Net.	220MMF, 2000MMF, 250MMF, 5000MMF, 6. 8Meg, 470K, 470K	MC-19	Aerovox Centralab Cornell-Dubilier Erie Sprague	PA-113-1 PC-150 116TM1 1408-01 DT-5

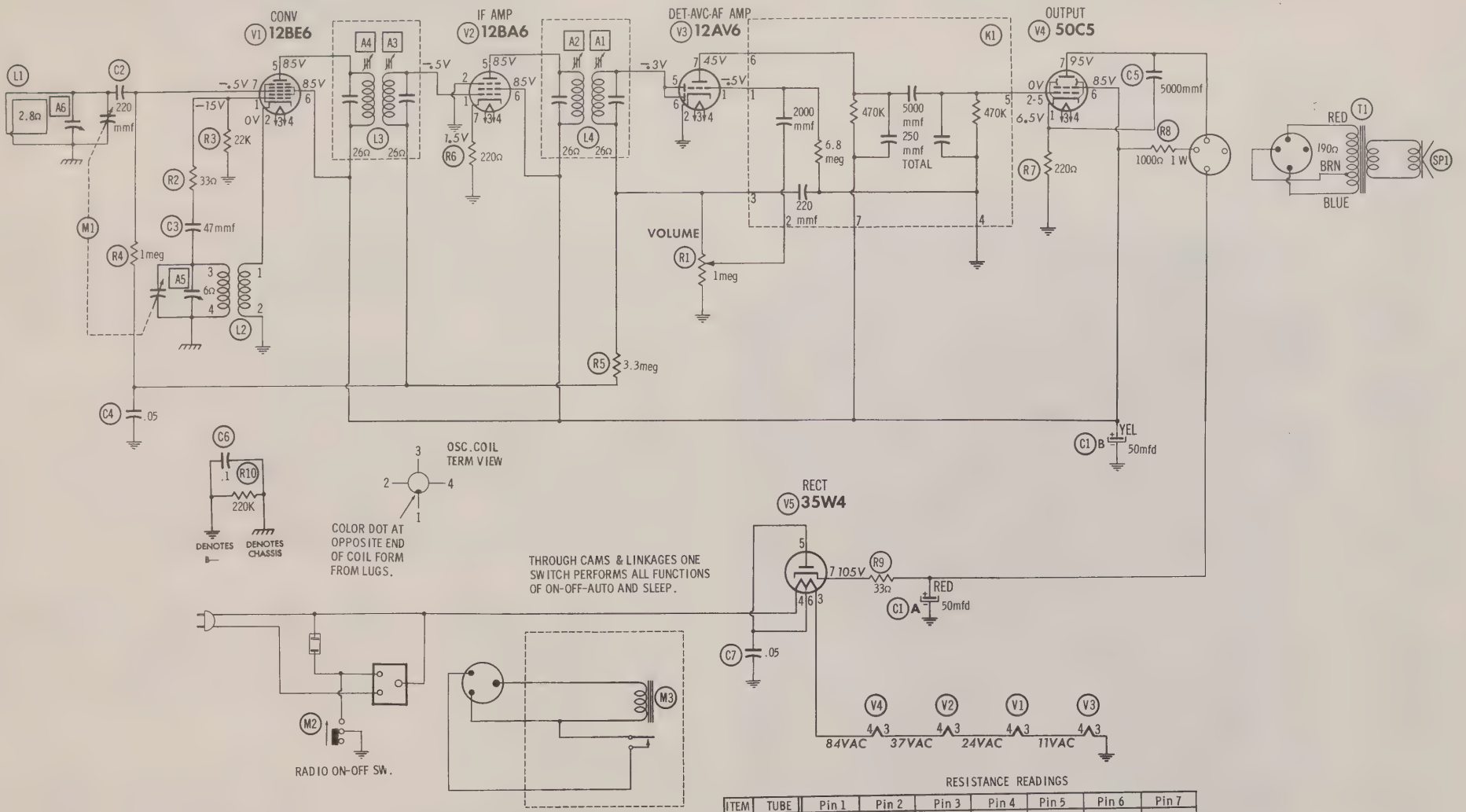
MISCELLANEOUS

ITEM No.	PART NAME	Trav-Ler PART No.	NOTES
M1	Tuning Cap.	GC-18	Two Gang (13-383MMF, 22-166MMF)
M2	Switch	SW-9	Radio On-Off , Slide Type (SPST)
M3	Clock	CK-5	

CHASSIS—BOTTOM VIEW



TRAV-LER MODEL 55C46



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	12BE6	22K	.8Ω	12Ω	25Ω	†1000Ω	†1000Ω	5.3Meg
V2	12BA6	4.3Meg	0Ω	25Ω	37Ω	†1000Ω	†1000Ω	220Ω
V3	12AV6	6.8Meg	0Ω	0Ω	12Ω	1Meg	1Meg	†470K
V4	50C5	220Ω	470K	37Ω	85Ω	470K	†1000Ω	†220Ω
V5	35W4	TP	NC	85Ω	115Ω	110Ω	110Ω	50K

† MEASURED FROM PIN 7 OF V5.
NC NO CONNECTION
TP TIE POINT

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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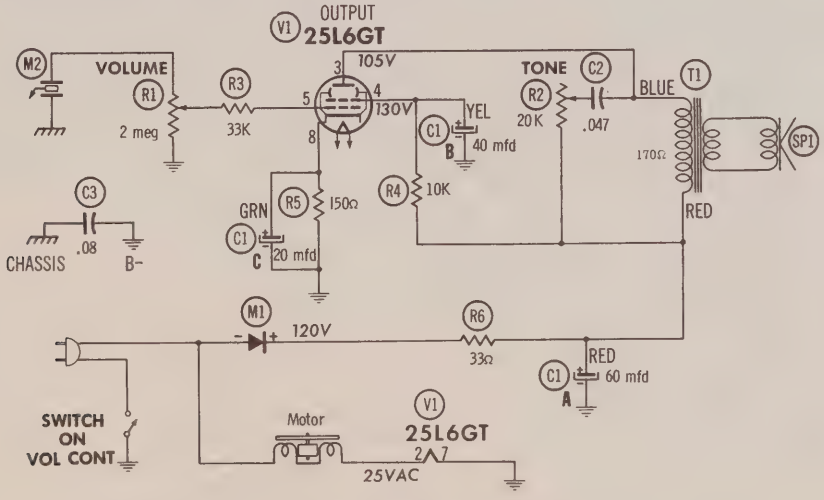
PROPERTY OF
E. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

V-M
MODEL 625

V-M
MODEL 625

TRADE NAME	V-M Model 625
MANUFACTURER	V-M Corp., Benton Harbor, Mich.
TYPE SET	AC Operated Phono Amplifier With 45RPM Automatic Record Changer
TUBES (One)	Type: 25L6GT Output
POWER SUPPLY	105-125 Volts AC-60 Cycles RATING .37 Amp. @ 117 Volts AC

FOR SERVICE INFORMATION ON RECORD CHANGER SEE SIMILAR RCA MODEL RP-190 SERIES - PHOTOFACT SET 144 FOLDER 7 OR RECORD CHANGER MANUAL CM-4.



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	25L6GT	NC	25Ω	†200Ω	†10K	33K	NC	0Ω

† MEASURED FROM OUTPUT OF M1.
NC NO CONNECTION

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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351-19

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PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Output	25L6GT	

ITEM No.	USE	TYPE	NOTES

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	V-M PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	60	150	12024 (Note 1)	PRS150/25V	BBRT8415C	FP311		FMT-333	TVA-3455
B	40	150		8040/20					
C	20	25							

Note 1: Some versions use Mfgr. part no. 12023 in this application.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	V-M PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2	.047	400	12009	BPD-05	DF-503	CUB4S47		PT4147	4TM-S47	
C3	.08	400	12005							

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	V-M PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	2Meg	½	12304	AB-76	A47-2Meg-Z	Q13-139	U55	Volume
B	Shaft			AK-4	KSS-3	Not Req.	Not Req.	
C	Switch			KB-1	SWE-12	76-1	US-26	
R2A	20K	½	12305	AB-29		Q13-120	U24	Tone
B	Shaft			AK-4		Not Req.	Not Req.	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	V-M PART No.	IRC PART No.	
R3	33K		11093	BTS-33K	
R4	10K		10973	BTS-10K	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	V-M PART No.	IRC PART No.	
R5	150Ω		10533	BTS-150	
R6	33Ω		10373	BTS-33	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	V-M PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	1900Ω	3-4Ω	Part of spkr. 9771-1	Z1101	A-3025	A-3332	26S58	S-12X	

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	V-M PART No.	QUAM PART No.		
SP1	5 1/4"	PM	3-4Ω	9771-1	52A1		

SELENIUM RECTIFIER

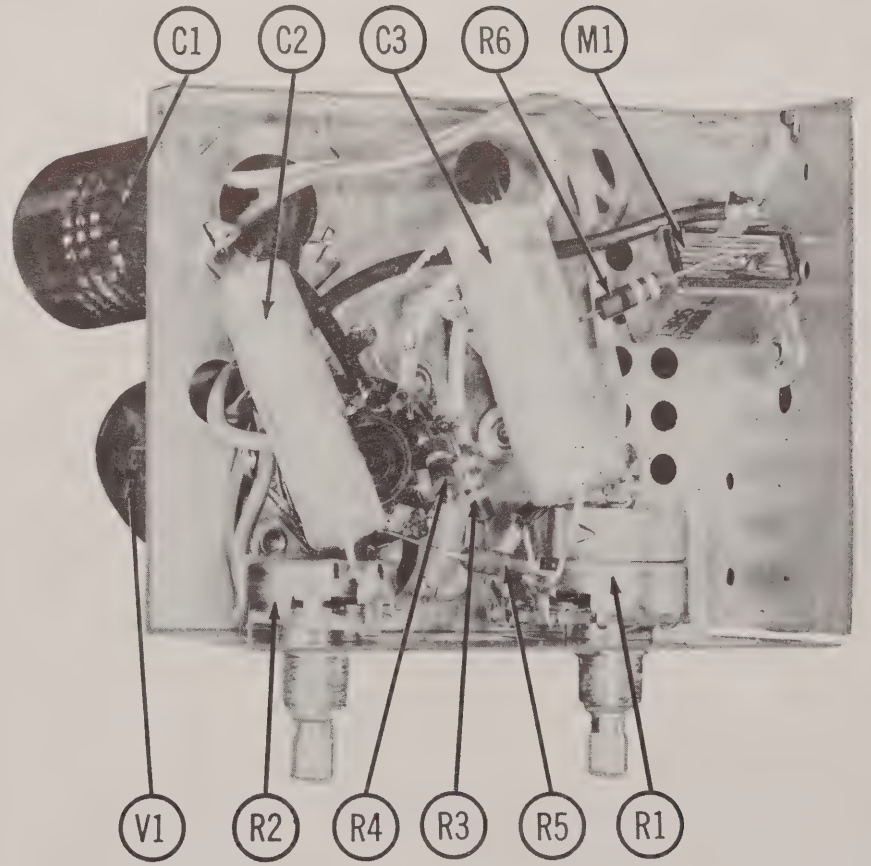
ITEM No.	RATING	REPLACEMENT DATA						NOTES
	CURRENT	V-M PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	MALLORY PART No.	RADIO RECEPTOR PART No.	SARKES TARZIAN PART No.	
M1	.047A	12526	1002A	RS065Q	6S65	8J1	65	

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA					REMARKS
	V-M PART No.	ASTATIC PART No.		ELECTRO-VOICE PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	
M2	9777	62-1	K	44	0-1 or S-1	

ASTATIC AND ELECTRO-VOICE NEEDLE LISTINGS SHOWN ABOVE ARE SPECIFIED FOR THE RESPECTIVE REPLACEMENT CARTRIDGES LISTED. FOR ORIGINAL CARTRIDGE NEEDLE REPLACEMENTS SEE BELOW.

CHASSIS—BOTTOM VIEW



25L6GT

PHONO NEEDLE

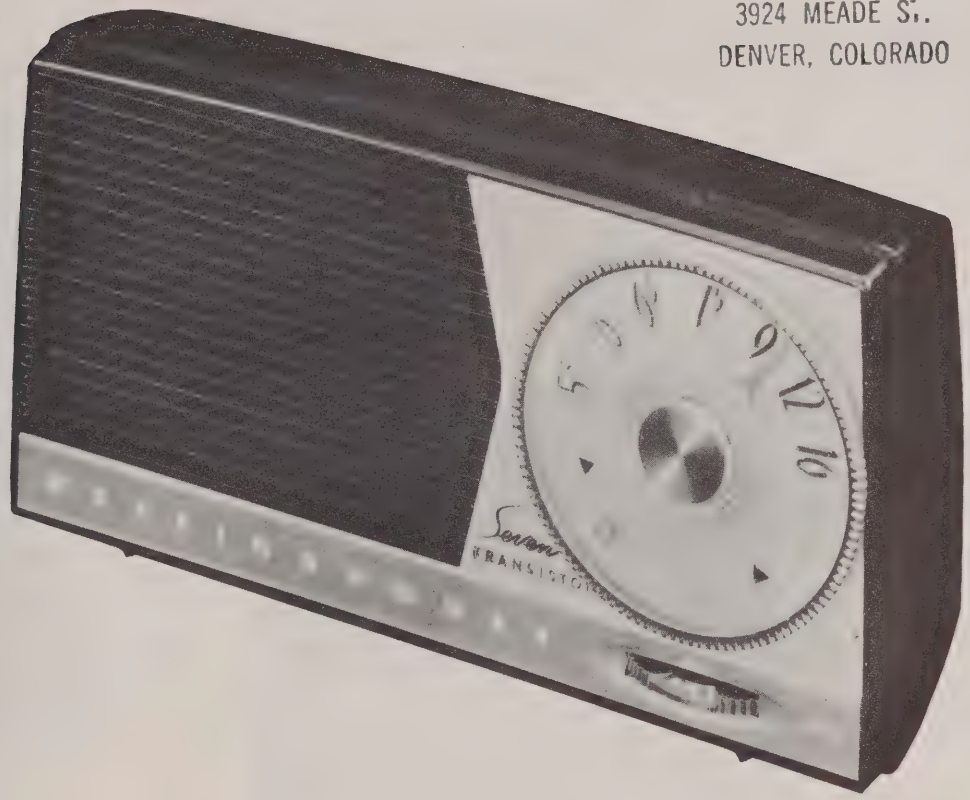
(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA			REMARKS
	V-M PART No.	JENSEN PART No.	WALCO PART No.	
M3			†W-64MGS or ♦W-64MGD	† Jewel ♦ Diamond

WESTINGHOUSE MODELS H-587P7, H-588P7, H-589P7 (Ch. V-2278-1)

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE St.
DENVER, COLORADO

WESTINGHOUSE MODELS H-587P7, H-588P7, H-589P7 (Ch. V-2278-1)



WESTINGHOUSE MODELS H-587P7, H-588P7, H-589P7 (Ch. V-2278-1)

TRADE NAME	Westinghouse Models H-587P7, H-588P7, H-589P7 (Ch. V-2278-1)
MANUFACTURER	Westinghouse Electric Corp., TV-Radio Div., Metuchen, N. J.
TYPE SET	Battery Operated Portable AM Transistorized Receiver
POWER SUPPLY	9 Volts DC
RATING	7MA @ 9 Volts DC
TUNING RANGE—BROADCAST	540KC - 1600KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.
Loop should be maintained in same relative position to chassis as when receiver is in cabinet.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.		Loop	455KC (400∿ Mod)	Tuning gang fully open.	Across voice coil.	A1, A2, A3	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
2.		"	1625KC	"	"	A4	"
3.		"	1400KC	Tune to 1400KC signal.	"	A5	"

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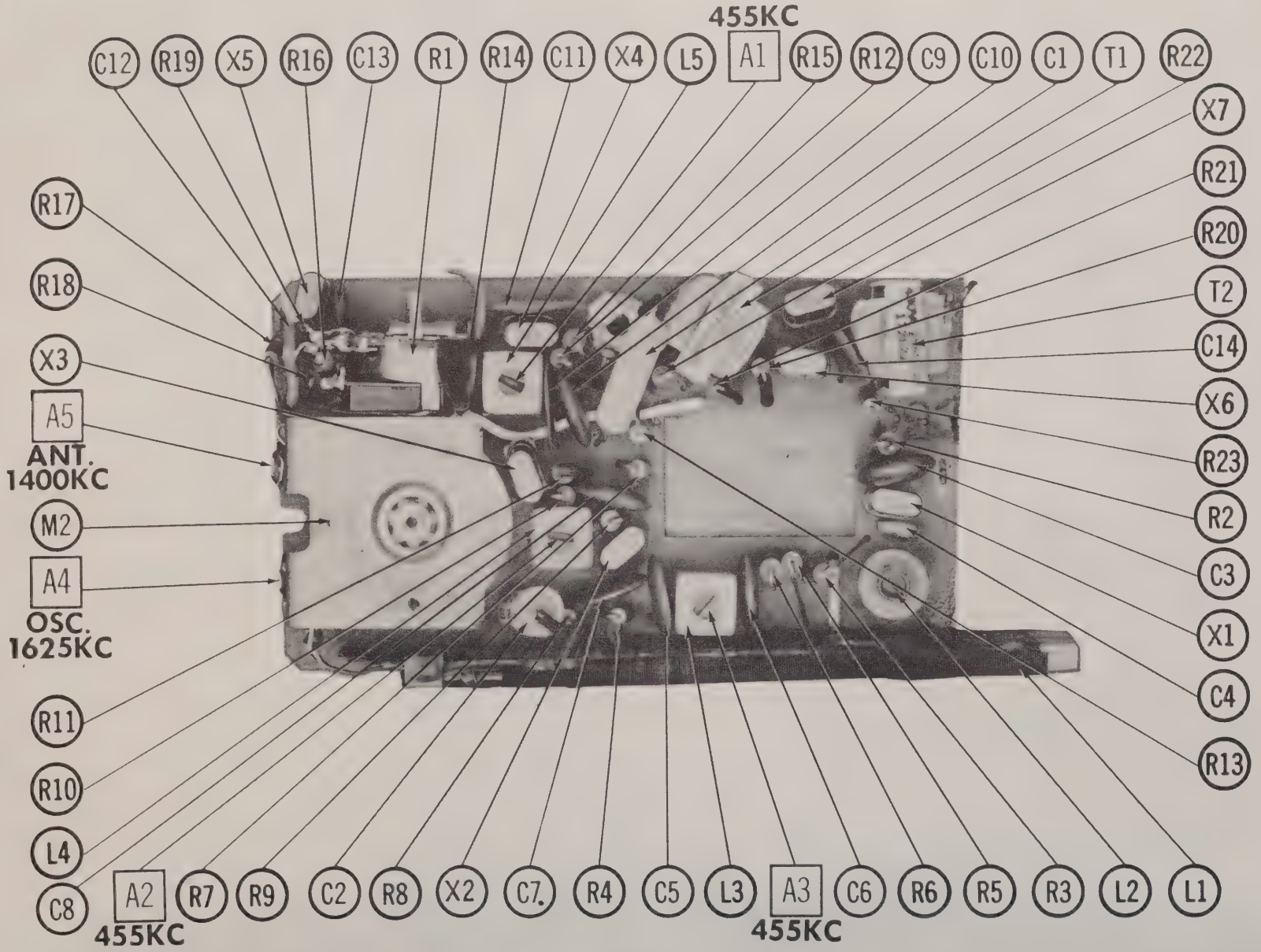


CHASSIS TOP VIEW

PARTS LIST AND DESCRIPTIONS

TRANSISTORS

ITEM No.	USE	TYPE	NOTES
X1	Converter	2N172	
X2	1st IF Amplifier	2N145	Note 1
X3	2nd IF Amplifier	2N147	Note 1
X4	Det. -AF Amp.	880	
X5	Driver	310	
X6	Output	2N185	Note 2
X7	Output	2N185	Note 2

Note 1: Type 2N146 may be used in some versions.
Note 2: X6 and X7 must be a matched pair.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA Westinghouse PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1	40	3	218V012M02	XPP3V40	EC40-3	TAP6-20	ML50-3		TE-1057*
C2	40	12	218V012M01	PWE12V40			ML40-15		R2329*

* Non catalog item.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA Westinghouse PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C3	10000		215V300M12	BPD-01	DD-103	K082	ED-01	DC511	5HK-S1	
C4	1000		215V300M15	BPD-001	DD-102	K069	ED-001	UC-521	5HK-D1	
C5	10000		215V300M12	BPD-01	DD-103	K082	ED-01	DC511	5HK-S1	
C6	10000		215V300M12	BPD-01	DD-103	K082	ED-01	DC511	5HK-S1	
C7	10000		215V300M12	BPD-01	DD-103	K082	ED-01	DC511	5HK-S1	
C8	10000		215V300M12	BPD-01	DD-103	K082	ED-01	DC511	5HK-S1	
C9	50000		215V303M03	BPD-05	DF-503					
C10	10000		215V300M12	BPD-01	DD-103	K082	ED-01	DC511	5HK-S1	
C11	50000		215V303M03	BPD-05	DF-503					
C12	100000		215V303M02							
C13	1000		215V300M15	BPD-001	DD-102	K069	ED-001	UC-521	5HK-D1	
C14	5000		215V303M01	BPD-005	DD-502	K080	ED-005	UC-525	5HK-D5	

CONTROLS

ITEM No.	RATING RESIST-ANCE	RATING WATTS	REPLACEMENT DATA Westinghouse PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1	5000Ω	½	270V024M01					Volume & Switch

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA Westinghouse PART No.	REPLACEMENT DATA IRC PART No.	NOTES
R2	150K		250V221A54	BTS-150K	
R3	1500Ω		250V221A52	BTS-1500	
R4	1000Ω		250V231A02	BTS-1000	
R5	15K		250V221A53	BTS-15K	
R6	3900Ω		250V223A92	BTS-3900	
R7	2200Ω		250V222A22	BTS-2200	
R8	1000Ω		250V231A02	BTS-1000	
R9	1000Ω		250V221A02	BTS-1000	
R10	15K		250V221A53	BTS-15K	
R11	470Ω		250V224A71	BTS-470	
R12	2700Ω		250V222A72	BTS-2700	
R13	330Ω		250V233A31	BTS-330	
R14	220K		250V222A24	BTS-220K	
R15	100Ω		250V231A01	BTS-100	
R16	330Ω		250V233A31	BTS-330	
R17	82K		250V228A23	BTS-82K	
R18	5600Ω		250V225A62	BTS-5600	
R19	220Ω		250V222A21	BTS-220	
R20	10Ω		250V221A00	BTS-10	
R21	100Ω		250V221A01	BTS-100	
R22	6800Ω		250V226A82	BTS-6800	
R23	220Ω		250V232A21	BTS-220	

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (DRIVER)

ITEM No.	RESISTANCE PRI.	RESISTANCE SEC.	REPLACEMENT DATA Westinghouse PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	450Ω	145Ω CT	430V024M01				TR-7		
	Turns Ratio 2 : 1								

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA Westinghouse PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	1200Ω CT	12Ω	430V025M01						

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA Westinghouse PART No.	QUAM PART No.	NOTES
SP1	2 3/4"	PM	12Ω	570V004M01		

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA Westinghouse PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	NOTES
L1	Loop Stick	310V012M01				
L2	Osc. Coil	230V018M01				
L3	1st IF Trans.	235V014M01			9C1	
L4	2nd IF Trans.	235V014M01			9C1	
L5	3rd IF Trans.	235V014M02			9C2	

BATTERIES

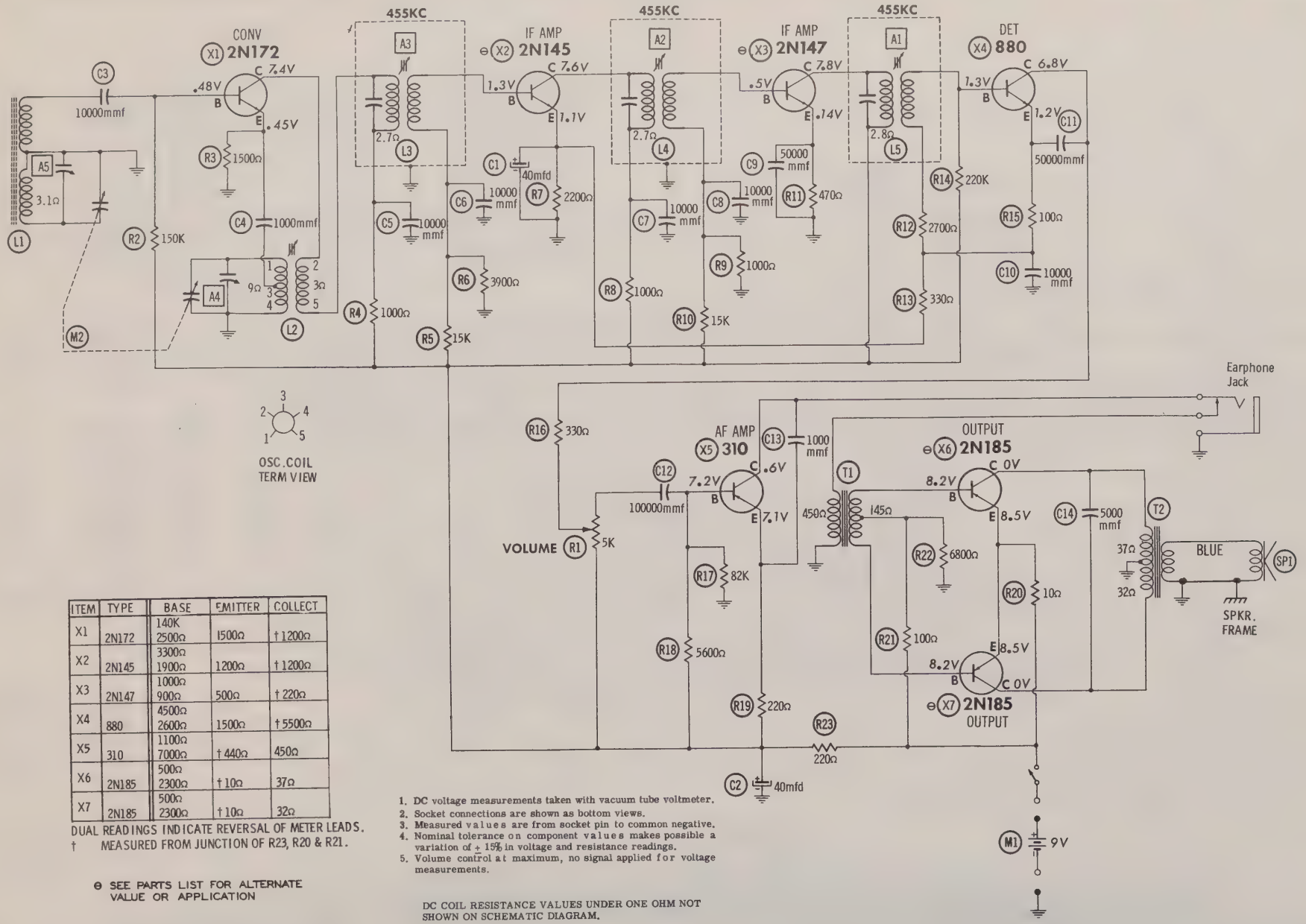
ITEM No.	VOLTAGE	Westinghouse PART No.	REPLACEMENT DATA EVEREADY "A"	EVEREADY "B"	EVEREADY "A-B"	BURGESS "A"	BURGESS "B"	BURGESS "A-B"	INSTALLATION NOTES
M1	9V "B"			226			P6		

MISCELLANEOUS

ITEM No.	PART NAME	Westinghouse PART No.	NOTES
M2	Tuning Cap.	330V005M01	2 Gang (8-130MMF, 10-90MMF) Note 1
	Cabinet	513V006M01	Model H-587P7.
	Cover-Back	V-19021-1	Model H-587P7.
	Cabinet	513V006M02	Model H-588P7.
	Cover-Back	V-19021-2	Model H-588P7.
	Cabinet	513V006M03	Model H-589P7.
	Cover-Back	V-19021-3	Model H-589P7.
	Case	513V008M01	Leather
	Knob	550V016M01	Dial
	Knob	650V017M01	Volume

Note 1: Alternate part #300V005M01.

WESTINGHOUSE MODEL H-587P7 (Ch. V-2278-1)



ITEM	TYPE	BASE	EMITTER	COLLECT
X1	2N172	140K 2500Ω	1500Ω	†1200Ω
X2	2N145	3300Ω 1900Ω	1200Ω	†1200Ω
X3	2N147	1000Ω 900Ω	500Ω	†220Ω
X4	880	4500Ω 2600Ω	1500Ω	†5500Ω
X5	310	1100Ω 7000Ω	†440Ω	450Ω
X6	2N185	500Ω 2300Ω	†10Ω	37Ω
X7	2N185	500Ω 2300Ω	†10Ω	32Ω

DUAL READINGS INDICATE REVERSAL OF METER LEADS.
† MEASURED FROM JUNCTION OF R23, R20 & R21.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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ZENITH MODEL
Royal 800 (Ch. 7ZT41)

ZENITH MODEL
Royal 800 (Ch. 7ZT41)

TRADE NAME	Zenith Models Royal 800G, Royal 800Y (Ch. 7ZT41G, Y)
MANUFACTURER	Zenith Radio Corp., 6001 Dickens Ave., Chicago 39, Ill.
TYPE SET	Battery Operated Portable AM Transistorized Receiver

POWER SUPPLY 12 Volts DC RATING 14MA @ 12 Volts DC
TUNING RANGE—BROADCAST 540KC - 1600KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
To set pointer, turn tuning capacitor fully closed and set pointer to last reference mark at low frequency end of dial.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.		Loop	455KC	600KC	Across earphone jack.	A1, A2, A3	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
2.		"	1620KC	Tuning gang fully open.	"	A4	"
3.		"	1420KC	Tune to 1420KC signal.	"	A5	"
4.		"	540KC	Tuning gang fully closed.	"	A6	"

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DENVER, COLORADO

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PARTS LIST AND DESCRIPTIONS

TRANSISTORS

ITEM No.	USE	TYPE	NOTES
X1	Mixer	121-24	
X2	Oscillator	121-25	
X3	1st IF Amplifier	121-26	
X4	2nd IF Amplifier	121-33	
X5	AF Amplifier	121-27	
X6	Output	121-34	
X7	Output	121-34	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	ZENITH PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1	16	3	22-2871	XPP6V15	NL16-3	TAP15-15	ML-20-3		TE-1089
C2	3	12	22-2884	XPP12V5	NL3-15	TAP60-4	ML-4-15		TE-1127
C3	50	12	22-2883	SRE12V50	NL50-12				R2335*
C4	50	12	22-2883	SRE12V50	NL50-12				R2335*
C5	50	12	22-2883	SRE12V50	NL50-12				R2335*

* Non catalog item.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	ZENITH PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C6	50000		22-2728	BPD-05	DF-503					
C7	1000		22-17	BPD-001	DD-102	K069	ED-001	DC521	5HK-D1	
C8	50000		22-2728	BPD-05	DF-503					
C9	50000		22-2728	BPD-05	DF-503					
C10	50000		22-2728	BPD-05	DF-503					
C11	50000		22-2728	BPD-05	DF-503					
C12	50000		22-2728	BPD-05	DF-503					
C13	5		22-2716				TC3-4.7			
C14	.1	100	22-2878	P288N-1	DF-104	CUB2P1			2TM-P1	
C15	.1	100	22-2878	P288N-1	DF-104	CUB2P1			2TM-P1	
C16	.1	100	22-2878	P288N-1	DF-104	CUB2P1			2TM-P1	
C17	.1	100	22-2878	P288N-1	DF-104	CUB2P1			2TM-P1	
C18	50000		22-2728	BPD-05	DF-503					
C19	20000		22-2885	BPD-02	DD-203	K085	ED-02		5HK-S2	
C20	1000		22-17	BPD-001	DD-102	K069	ED-001	DC521	5HK-D1	
C21	.1	100	22-2878	P288N-1	DF-104	CUB2P1			2TM-P1	
C22	5		22-2716				TC3-4.7			Note 1

Note 1: Not used in some versions.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	ZENITH PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	5000Ω	½	63-3660	AB-10	A47-5000-S	Q11-114	U14	Volume
B	Shaft			AK-4	KSS-3	Not Req.	Not Req.	
C	Switch			KB-1	SWE-12	76-1	US-26	

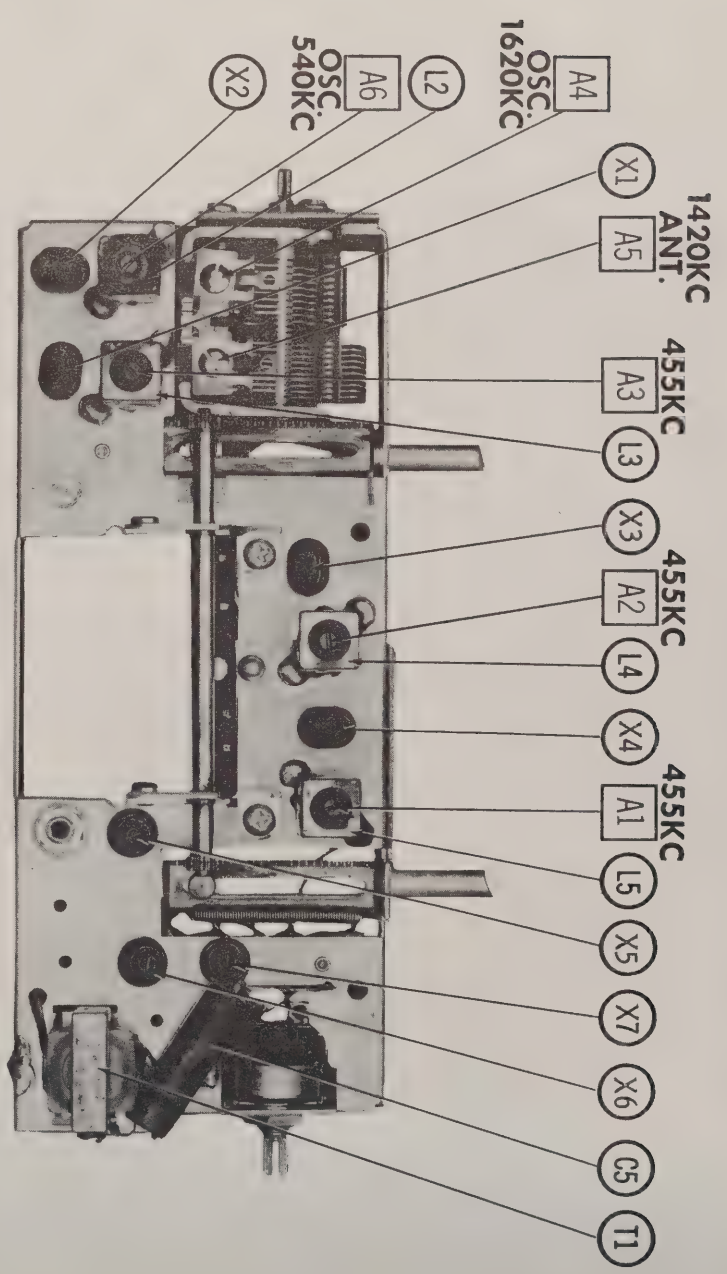
RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	ZENITH PART No.	IRC PART No.	
R2	560Ω			BTS-560	
R3	1000Ω			BTS-1000	
R4	220K			BTS-220K	
R5	15K			BTS-15K	
R6	1000Ω			BTS-1000	
R7	2200Ω			BTS-2200	
R8	4700Ω			BTS-4700	
R9	10K			BTS-10K	
R10	3300Ω			BTS-3300	
R11	1500Ω			BTS-1500	
R12	1000Ω			BTS-1000	
R13	100K			BTS-100K	
R14	4700Ω			BTS-4700	
R15	470Ω			BTS-470	
R16	470Ω			BTS-470	
R17	10K			BTS-10K	
R18	100K			BTS-100K	
R19	5600Ω			BTS-5600	
R20	220Ω			BTS-220	
R21	5600Ω			BTS-5600	
R22			63-3663		Note 1
R23	470Ω			BTS-470	
R24	4.7Ω	1	63-3665		
R25	100Ω			BTS-100	

Note 1: Special temperature compensation resistor.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (DRIVER)

ITEM No.	Turns Ratio		REPLACEMENT DATA						NOTES
	PRI.	SEC.	ZENITH PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	2.5 : 1		95-1490				TR-7		

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	ZENITH PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	5250Ω CT	3-4Ω	95-1491						

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	ZENITH PART No.	QUAM PART No.	
SP1	4"	PM	3-4Ω	49-805	4A07	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		ZENITH PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Loop Stick	S-40161				
L2	Osc. Coil	95-1494				
L3	1st IF Trans.	95-1459	16-9003			
L4	2nd IF Trans.	95-4159	16-9003			
L5	3rd IF Trans.	95-1460	16-9004			

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA		NOTES
		ZENITH PART No.	SYLVANIA PART No.	
M1	1N295	103-19	1N60	Detector (Pigtail)

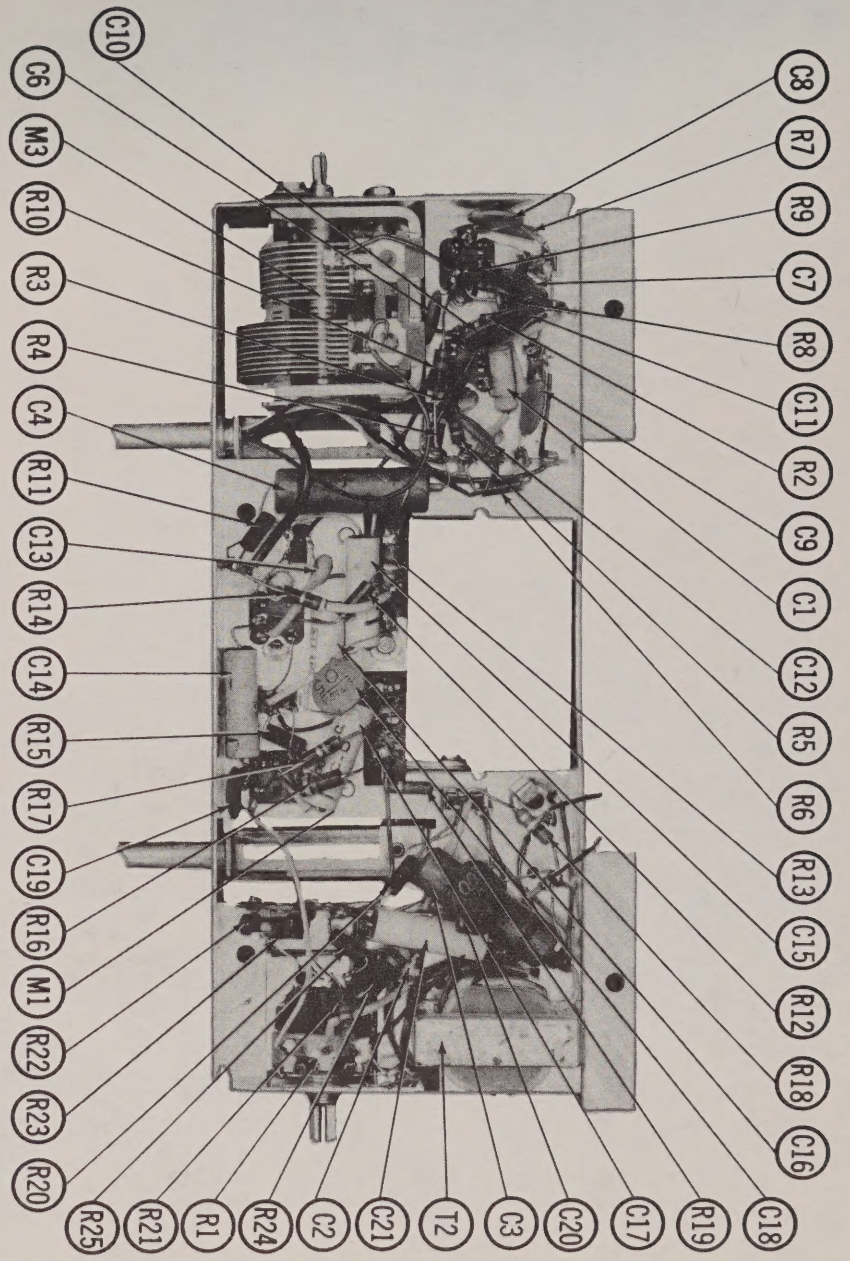
BATTERIES

ITEM No.	VOLTAGE	ZENITH PART No.	REPLACEMENT DATA						INSTALLATION NOTES
			EVEREADY			BURGESS			
			"A"	"B"	"A-B"	"A"	"B"	"A-B"	
M2	12V	Z-7	935			#1			8 Required

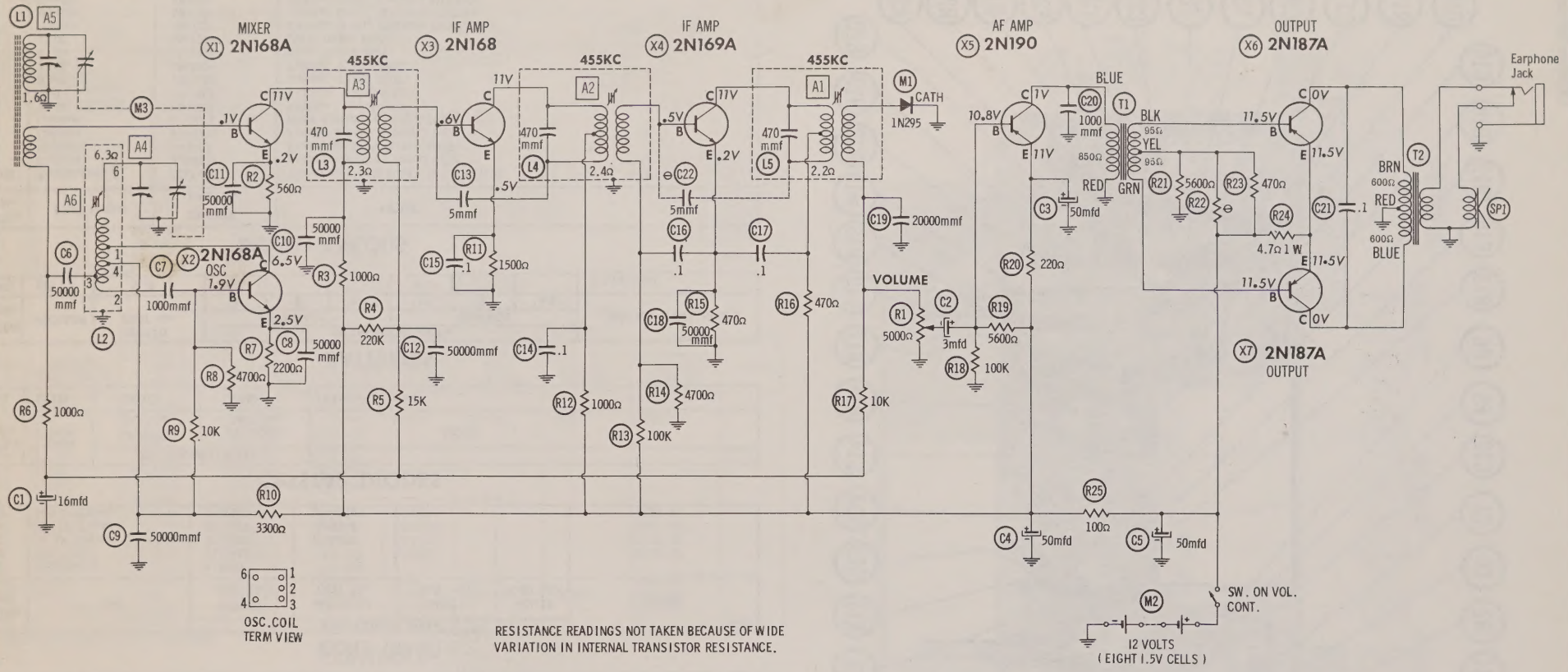
MISCELLANEOUS

ITEM No.	PART NAME	ZENITH PART No.	NOTES
M3	Tuning Cap.	22-2881	Two Gang (18-265MMF, 20-125MMF)
	Cabinet	S-24526	Front Assembly, Royal 800Y.
	Cabinet	14-2017	Rear Assembly, Royal 800Y.
	Cabinet	S-24975	Front Assembly, Royal 800G.
	Cabinet	14-2018	Rear Assembly, Royal 800G.
	Knob	46-1552	Volume, Royal 800Y.
	Knob	46-1553	Volume, Royal 800G.
	Knob	46-1555	Tuning, Royal 800Y.
	Knob	46-1556	Tuning, Royal 800G.
	Knob	46-1558	Dial, Royal 800Y.
	Knob	46-1559	Dial, Royal 800G.
	Handle	36-143	Cabinet (Top), Chassis 7ZT41Y.
	Handle	36-146	Cabinet (Bot.), Chassis 7ZT41Y.
	Handle	36-144	Cabinet (Top), Chassis 7ZT41G.
	Handle	36-147	Cabinet (Bot.), Chassis 7ZT41G.

CHASSIS—BOTTOM VIEW



ZENITH MODEL ROYAL 800G



RESISTANCE READINGS NOT TAKEN BECAUSE OF WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.

1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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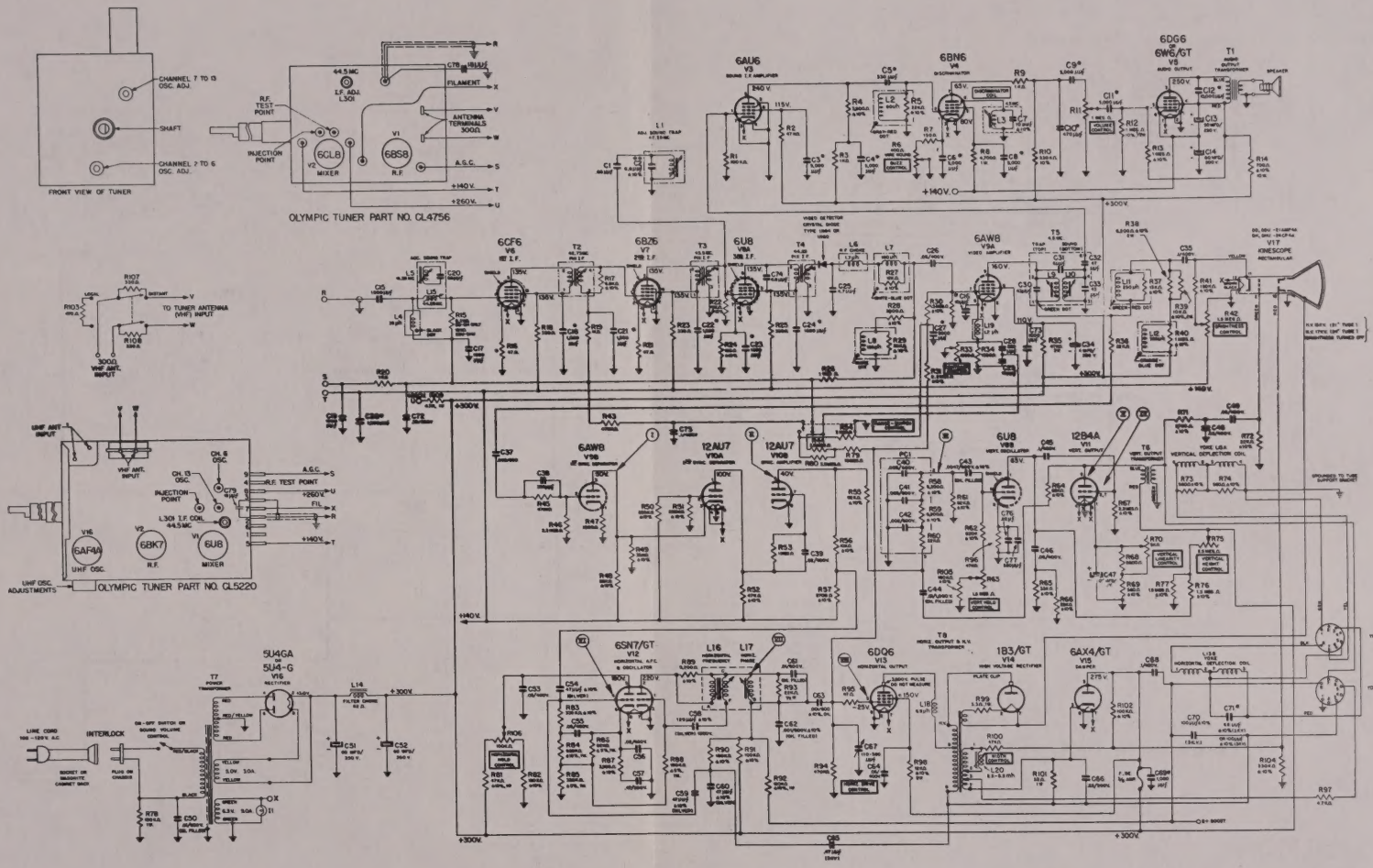
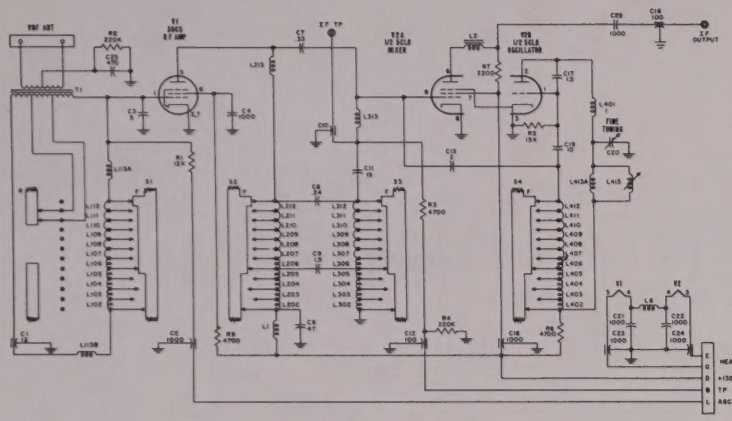
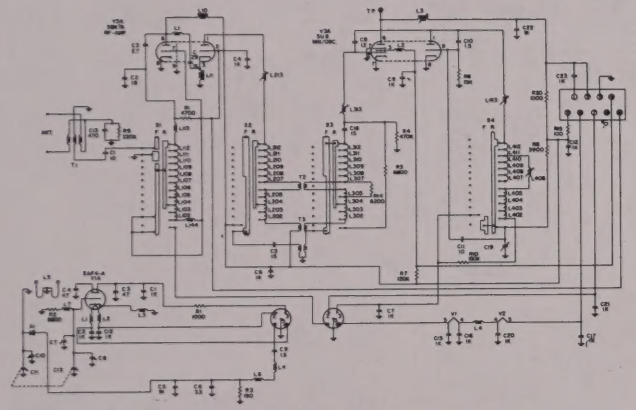
OLYMPIC MODELS	CHASSIS
1CD73	"DD"
1CD73U	"DDU"
1CD74	"DD"
1CD74U	"DDU"
1KD81	"DD"
1KD81U	"DDU"
1KD82	"DD"
1KD82U	"DDU"
1KD83	"DD"
1KD83U	"DDU"
1TD62	"DD"
1TD62U	"DDU"
4KH85	"DH"
4KH85U	"DHU"
4KH86	"DH"
4KH86U	"DHU"



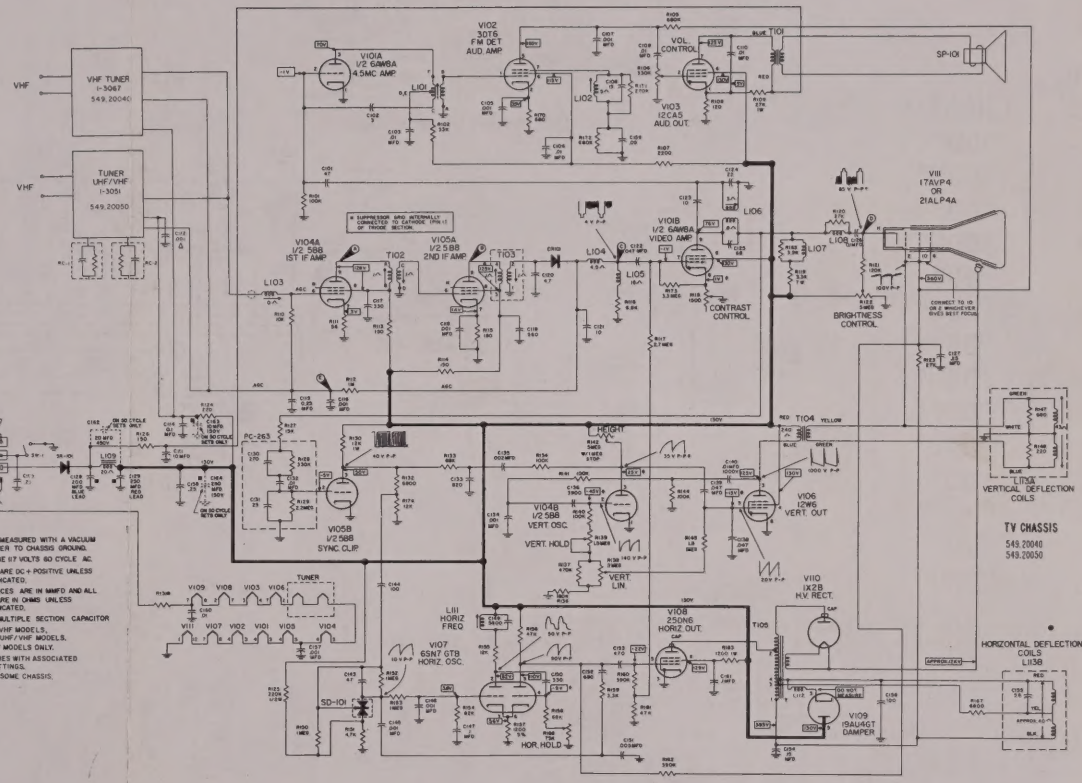
SCHEMATIC COURTESY OF OLYMPIC RADIO & TELEVISION INC.



I-3067 Tuner Schematic VHF



Schematic for 1-3051 VHF/UHF


VHF TUNER I-3067 549.20040
TUNER UHF/VHF I-3051 549.20050
V102 3D76 FM DET AUD. AMP
V101A 1/2 6AW8A 4.5MC AMP
VOL CONTROL
V103 12CA5 AUD. OUT
SP-101
V101B 1/2 6AW8A VIDEO AMP
V104A 1/2 5B8 1ST IF AMP
V105A 1/2 5B8 2ND IF AMP
CONTRAST CONTROL
BRIGHTNESS CONTROL
V111 17AVP4 OR 21ALP4A
V104B 1/2 5B8 VERT. OSC.
V105B 1/2 5B8 SYNC. CLIP
VERT. HOLD
VERT. LIN.
V106 12W6 VERT. OUT
VERTICAL DEFLECTION COILS L114
TV CHASSIS 549.20040 549.20050
V110 1X2B H.V. RECT.
V108 25N6 HORIZ. OUT.
V107 6SN7 GTB HORIZ. OSC.
HORIZ FREQ
HOR. HOLD
V109 19AU4GT DAMPER
HORIZONTAL DEFLECTION COILS L138
TUNER
SD-101
HEIGHT
NOTES:
1. ALL VOLTAGES MEASURED WITH A VACUUM TUBE VOLTMETER TO CHASSIS GROUND.
2. SUPPLY VOLTAGE 117 VOLTS 60 CYCLE AC.
3. ALL VOLTAGES ARE DC + POSITIVE UNLESS OTHERWISE INDICATED.
4. ALL CAPACITANCES ARE IN MMFD AND ALL RESISTANCES ARE IN OHMS UNLESS OTHERWISE INDICATED.
5. ⊕ INDICATES MULTIPLE SECTION CAPACITOR
6. + 15 OHMS ON VHF MODELS. 10 OHMS ON UHF/VHF MODELS.
7. & USED ON UHF MODELS ONLY.
8. ✱ VOLTAGE VARIES WITH ASSOCIATED CONTROL SETTINGS.
9. ‡ NOT USED IN SOME CHASSIS.

SILVERTONE

MODELS	CHASSIS
6102, 6103	549.20040, 549.20050

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DENVER, COLORADO

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